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A
T R E A T I S E

ON THE
THEORY AND MANAGEMENT

OF
U L C E R S:

WITH A DISSERTATION ON
WHITE SWELLINGS OF THE JOINTS.

TO WHICH IS PREFIXED, AN
ESSAY ON THE CHIRURGICAL TREATMENT
OF
INFLAMMATION AND ITS CONSEQUENCES.

BY
B E N J A M I N B E L L,

MEMBER OF THE ROYAL COLLEGE OF SURGEONS, ONE OF THE
SURGEONS TO THE ROYAL INFIRMARY, AND FELLOW
OF THE ROYAL SOCIETY OF EDINBURGH.

A NEW EDITION.

Ad utilitatem vite omnia consilia factaque nostra dirigenda sunt. TACIT.

E D I N B U R G H:

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M.DCC.LXXXIX.



TO
PERCIVAL POTT, Esq.

F. R. S.

And SURGEON to St Bartholomew's
Hospital, LONDON.

SIR,

THE extensive practice in which you have been long engaged, and the many useful improvements, founded on experience, which you have introduced into Surgery, deservedly raise you to an eminent rank in your profession.

This alone would induce any practitioner to court the honour of your protection to his first publication. But I might justly be accused of ingratitude, if I did not also seize this occasion of publicly acknowledging my obligations to you, and of expressing my grateful sense of the advantages which I enjoyed, when I had

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iv DEDICATION.

an opportunity, not only of observing your practice in Surgery, but of becoming acquainted with the principles and opinions by which it was directed.

To render these sentiments of my respect and gratitude as public as they are sincere, was my only view in this address. To say more, or to assume the usual language of dedication, would, I know, be offensive to you. Permit me to add, that I am, with great respect,

SIR,

Your obliged,

And obedient humble servant,

BENJAMIN BELL.

EDINBURGH, Jan. 20. }
1784. }

PRE -

P R E F A C E.

SINCE the commencement of the present century very considerable improvements have been made both in Medicine and in Surgery. The latter particularly, during the course of this period, seems to have been enriched with more real knowledge than it was ever before possessed of.

From this consideration, it may possibly be alleged by some, that nothing new can now be offered on the subject of Surgery; and therefore, that any farther publication in that line must, in some measure, be superfluous. Although much, however, has been written, and a great deal of light thrown upon the principal and more leading parts of Surgery; yet still, from less attention having been paid to some of its branches, there are many chirurgical diseases which are neither so well understood, nor so accurately treated, as we might otherwise have expected.

This seems, in a great measure, to proceed from the fame and reputation commonly acquired by success in the more capital operations of Surgery; which having a greater effect with the public than the most successful treatment of complaints not evidently of so much consequence, has naturally prevented practitioners from paying to diseases of this nature that attention which they certainly deserve.

And in consequence of this, though the real operative part of the profession is, in general, carried to as great perfection as it may probably ever attain; yet Surgeons daily meet with disorders which baffle all their ingenuity; by their failure in which, not only their own private reputation, but that of the art in general, suffers more than can be ever compensated by any temporary eclat from an operation.

Many complaints might be enumerated, which have suffered from such neglect; but none, it is presumed, are in general less understood than some of those which make the subjects of the following Essays. The theory and treatment of ulcers especially, although a great deal has been written concerning them, are still very defective: The descriptions given of them by authors are so tedious, and the distinctions so complicated and various, that, to a young practitioner particularly, it is no easy matter, either to comprehend rightly such distinctions, or to apply the different remedies recommended for each.

Applications and medicines for ulcers, as pointed out by foreign writers especially, are indeed so numerous, and frequently so contradictory, that even the oldest practitioners find it impossible to reconcile them to reason; but being generally recommended as in consequence of experience, that circumstance alone makes them too frequently adopted,

adopted, without being examined into ; whereas a little attention would render it evident, that few publications on this subject, which have appeared for perhaps a century past, contain any thing new, the practice pointed out by all of them being in general merely copied by one author from another.

It was this, together with my meeting with more frequent disappointments in the cure of ulcers than of any other complaint, which made me first pay more particular attention to their management. In consequence of which, I found a much less complicated treatment than had been generally recommended, prove more efficacious, and a great deal of trouble saved thereby both to my patients and myself. How far the same methods may with others be found to succeed, I shall not pretend to say : This, however, I must observe, that there is nothing recommended in the following sheets, but what has been confirmed by repeated experience.

I am far from imagining, however, that any thing I have to advance, either exhausts the subject, or renders farther improvements in it unnecessary. But whatever deficiencies the present publication may labour under, this advantage may at least be expected from it, that it will point out to others a material branch of Surgery, which for a long time has been very much neglected ; a subject, too, that still deserves their attention,

and in which many useful improvements are yet probably to be made.

The treatise on inflammation and its consequences was read, several years ago, before the College of Surgeons of this place; and as it was approved of by some of my friends, I now insert it here with some additions and alterations: As many of the observations, too, relating to inflammation, apply with equal propriety to different circumstances of ulcers, the consideration of that subject could not, it was presumed, be any where more properly introduced.

White swellings of the joints is another complaint, in the treatment of which we are exceedingly deficient; and I am sorry to observe, that what I have to offer upon it does not tend so much to its farther elucidation as I could have wished. But no regular account having ever been given of white swellings; and as I have had many opportunities, both of seeing such complaints treated in the ordinary way, and of dissecting the diseased joints after amputation, I thought it might prove acceptable to the reader to have a full account of the practice employed in them, as well as of the observations I have made in dissections. This I have endeavoured accurately to do; but having nothing altogether satisfactory to communicate on the method of cure, proximity on any other part of the subject would not, I know, to the generality of practitioners, prove very acceptable.

I must here observe, however, that although nothing very material be pointed out in the treatment of the more inveterate species of white swelling; yet the distinction proposed to be established, of such disorders, into two distinct species, is a matter of no inconsiderable importance. Swellings of this nature are evidently produced by two sets of very different causes; the one occasioning a disease which will probably be always considered as incurable; and the other a complaint which may frequently not only be palliated, but even completely carried off. Practitioners ought therefore, in all such disorders, to be as accurate as possible in distinguishing the different causes which appear to have produced them; and not indiscriminately to consider every case of white swelling as incurable, and to proceed accordingly, as is generally done, to immediate amputation.

As the former editions of this work have met with a very favourable reception, I have considered it as a duty which I owe to the public to do all in my power to render this *third* edition of it as correct as possible: Much pains have therefore been bestowed upon it; a good deal of new matter is now introduced; every late improvement relating to the subjects treated of is taken notice of; and to the whole a copious Index is added.

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G H I.

CHIRURGICAL
ESSAYS.

PART I.

On INFLAMMATION and its Consequences.

SECTION I.

Of the Symptoms and Causes of Inflammation.

AS Inflammation is, in many disorders, and especially in Wounds, Contusions, and Ulcers, the most troublesome symptom with which Surgeons have to contend, an investigation of its causes,
B of

of the circumstances attending it, and of the method of treatment best adapted to its removal, naturally occurs as an object of importance: And this is accordingly a sufficient reason for its consideration being introduced as one of the first articles in every chirurgical dissertation.

Inflammation, it is well known, is a disorder to which every organised part of the body is liable. But, as its attacks upon the internal parts are generally attended with symptoms, the treatment of which more properly belongs to the province of Medicine, we do not at present intend to enter into the discussion of these; but merely to consider the complaint, with its several consequences, as it is most frequently observed to occur externally. And as the greatest part of the phenomena that in general attend it, will be understood from the consideration of phlegmon or local inflammation, we propose more particularly to confine our observations to that species of the disorder.

§ 1.

§ 1. *Of the Symptoms and Terminations of Phlegmon.*

PHLEGMON is a term commonly applied to a circumscribed tumor, attended with heat, redness, tension, and a throbbing pain. These are the first appearances observed in every case of phlegmon; and when they are slight, and the part affected is of no great extent, they have commonly very little, and sometimes no apparent, influence on the general system. But, when they are more considerable, and the inflammation becomes extensive, a full, quick, and generally a hard, pulse takes place; and the patient, at the same time, complains of universal heat, thirst, and other symptoms of fever.

If, either by an effort of nature, or by the application of proper remedies, the pain, heat, and tension, are removed, the other symptoms we have mentioned, and which in a great measure or altogether depended on these, likewise abate, and the patient soon gets well. This is reckoned the first, and is generally the most desir-

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able,

able, mode of termination, and is termed Resolution.

If, however, in the course of a short time, and notwithstanding the application of the usual remedies, the several symptoms of heat, pain, and redness, instead of diminishing, rather increase; if the febrile symptoms are likewise augmented, and the tumor gradually acquires a larger size, turns soft, somewhat prominent in the middle, or towards its most depending part, gets a clear shining appearance, and becomes less painful; the different symptoms of fever then abate, and a fluid, upon pressure, is found to fluctuate underneath. This is another manner in which inflammation terminates, and is called Suppuration.

But if the pain, redness, and tension of the part increase, while the fullness of pulse and other febrile symptoms are augmented, at the same time that there is little change in the tumor in point of size, there is then great reason to suspect that Gangrene or Mortification will soon take place.

Mortification first appears by a change
of

- of colour in the part affected, which, from being of a bright red, comes to acquire a leaden or livid cast, while small vesicles containing a thin acrid serum are dispersed over its surface—the pain abates—the pulse sinks—but continues frequent—the tumor at last loses its tenseness—turns quite black and flaccid—and so terminates in a real mortified or dead spot.

These are the several ordinary consequences of inflammation. By many authors, however, another disorder has been treated of as one of its terminations, *viz.* Scirrhus. But although that complaint does, perhaps, in some instances, succeed to inflammation, yet it is far from being a common consequence of it: so that, tho' inflammatory affections may justly enough be mentioned as one of the many exciting causes of Scirrhus, yet the consideration of that disorder can never with propriety, it is presumed, be introduced in a treatise on inflammation.

The different appearances which in general occur in phlegmon being thus pointed

out, together with the manner in which they usually terminate, we shall now proceed to the consideration of the most frequent exciting causes of the disorder, and likewise of that which appears most probably to be the immediate or proximate cause; and shall conclude with the prognosis, and method of treatment adapted to the several modes in which the disease is found to terminate.

§ 2. *Of the exciting and predisposing Causes of Inflammation.*

THE exciting causes of inflammation, are in general whatever tend to stimulate, or to produce pain and irritation: Such as wounds of all kinds, whether simple, lacerated, or punctured, and with whatever instrument they may be produced—also bruises and burns, whether by the actual or potential cautery—likewise all corrosive and irritating applications, as the different strong acids, cantharides, and all the class of rubefacientia. Ligatures may likewise be mentioned, and tumors that act as ligatures

gatures by producing an undue compression on any of the blood-vessels and nerves; as also, violent exercise of any particular member, and cold applied to a particular part.

These are the most common external causes of phlegmon: but there are some others which tend to produce the same effect, which we are to consider entirely as of an internal kind; such are the different vitiated states of the fluids, excited by the presence of morbid matters of different kinds, as those of Lues Venerea, Small Pox, Measles, and Scrophula. Fevers too that end in critical inflammations and consequent abscesses, seem likewise to act in the same manner.

Under one or other of these heads are comprehended, we presume, almost all the exciting causes of inflammation. It is not improper, however, here to observe, that there are other causes which with propriety may be said to be of the predisposing kind; by tending to produce such a state of the system, as renders it more

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sus-

susceptible of inflammatory complaints than naturally it ought to be. The most remarkable of these is, a full plethoric habit of body, induced either by a very nourishing diet, or by want of exercise; or, perhaps, by a combination of both. These disorders, too, are observed to be more frequent in young than in old people, and in men more than in women.

§ 3. *Of the proximate Cause of Inflammation.*

VARIOUS opinions have been delivered with respect to the proximate cause of inflammation: many of which, by not having much probability to support them, have never been generally admitted; and others, after having prevailed for a time, have at last too been rejected.

The doctrine on this subject, which for some years has prevailed in this University, as it readily accounts for the action of the several exciting causes of Inflammation, for the effects of the disorder, and for the operation of the medicines employed in the cure, will in future be probably

considered as explaining with most clearness the proximate cause of all inflammatory affections.

From observing the different phenomena which occur in inflammation, an increased action in the vessels of the part affected seems in every case evidently to take place; and as from an increased action in the arteries of a part, all the circumstances of inflammation are easily explained, we are induced, therefore, to consider such a state of the vessels as the proximate cause of the disorder.

This opinion, as we have already observed, is greatly supported from a review of the several exciting causes of inflammation; which being in general of an irritating or stimulating nature, their application to any living or sensible parts must of course be always attended with a preternatural exertion of the vessels in such parts. Thus, to reason from analogy, we observe, that sternutatories applied to the internal membrane of the nose—the aliments to the stomach and intestines—and the blood to the
internal

internal surfaces of the vessels, all serve as so many stimulants to action in these different parts; and, in the same manner, corrosive or other irritating substances, when applied to the coats of the arteries, naturally in them produce the same effects as in other muscular organs.

We thus in a very probable manner account for the action of all direct stimulants in the production of inflammation. It frequently happens, however, that inflammation takes place when the application of stimulants, or irritating substances, cannot in any degree be suspected. In such cases, the increased action of the arteries, and of the heart when it occurs, seems to be supported by a spasm or constriction of the extreme vessels, either of a particular part, or of the general system. And hence, from the known tonic or astringent power of cold, we account for the frequent occurrence of inflammatory affections in our cold seasons of winter and spring; and hence, too, the throat and lungs are more especially subject to disorders

disorders attended with inflammation, from these parts being more particularly liable to the immediate action of cold.

Dr Cullen, who considers spasm as the sole proximate cause of inflammation, when treating of this subject, says, "That a spasm of the extreme vessels takes place in inflammation, is presumed from what is at the same time the state of the whole arterial system. In all considerable inflammations, though arising in one part only, an affection is communicated to the whole system; in consequence of which, an inflammation is readily produced in other parts besides that first affected. This general affection is well known to physicians, under the name of *Diatbesis Phlogistica*. It most commonly appears in persons of the most rigid fibres; is often manifestly induced by the tonic or astringent power of cold; is increased by all tonic and stimulant powers applied to the body; is always attended by a hardness of the pulse; and is most effectually taken off by the relaxing power of blood-letting. From these

these circumstances, it is probable, that the diathesis phlogistica consists in an increased tone, or contractility, and perhaps contraction, of the muscular fibres of the whole arterial system*."

An increased action in the vessels of a part, being admitted as the proximate cause of inflammation, we can pretty certainly account for the operation of the several predisposing causes; and upon the same supposition may be explained the different symptoms which occur in the course of the disorder.

Thus the increased action of an artery, by forcing or propelling into the smaller sets of vessels, red globules, and other dense parts of the blood which they cannot easily transmit, very readily accounts for the redness, tumor, tension, and throbbing pain; which occur in every case of phlegmon: As likewise in some measure for the augmentation of heat, which increased attrition must in such cases always produce. It is probable, however, that the accumulation of

* See First Lines of the Practice of Physic, p. 88.

of animal-heat alone, which must necessarily arise from a larger proportion of blood being sent to a part than what naturally it should receive, will have a considerable influence in the production of an increased degree of heat.

The method of cure, as we have already observed, tends also to confirm the general doctrine with respect to the cause. Thus the most effectual remedies, in almost every case of inflammation, are exactly such as would be recommended for the removal of an increased tone in any particular part, were we convinced that this alone was the disease, *viz.* A low diet, blood-letting, with other weakening evacuations, together with emollient sedative applications: but this, when we come to speak more particularly of the different remedies, will more fully appear.

In almost every case of external inflammation, except, perhaps, when it is very extensive, and runs deep, and the different symptoms are all very violent, the prognostic should in general be favourable.

For,

For, if resolution, which is the easiest and most desirable termination of the disorder, is not effected, Suppuration will most readily be the consequence; and the danger attending it in that state, if the constitution is otherwise healthy, is not commonly very material.

When, however, the inflamed part is of any considerable extent, while the different local and general symptoms of fever at the same time are violent, a good deal of danger is to be dreaded. For, independent of the risk to the constitution from the fever itself, if the symptoms continue high for any length of time, without showing some tendency either to Resolution or Suppuration, Gangrene will pretty certainly follow; and in what manner that may terminate, is always uncertain.

S E C-

S E C T I O N II.

Of the Treatment of Inflammation by Resolution.

§ 1. *Resolution of inflamed Tumors is, in some instances, not to be attempted.*

IN the treatment of phlegmon, the principal circumstance, in general, to be kept in view, is its resolution; as being by much the safest and most speedy method of cure. I have said, however, only in general; as in some particular cases it is otherwise, and Resolution is by no means to be attempted.

Thus, inflammatory swellings, that occur in, or succeed to, fevers, and other internal disorders, ought always to be brought to suppuration; for nature in that way pointing out an exit for some superabundance of fluids existing in the system,

stem, it might probably be attended with danger to give her any interruption. It is, indeed, on the contrary, always in such cases the safest practice to assist her as much as possible, by the use of such applications as will most readily bring the swellings to suppuration.

There are other tumors again, proceeding from an internal cause too, in which it is perhaps best to do nothing at all, either with a view to resolve or suppurate, but just to leave them entirely to nature.

Thus, in swellings of an inflammatory kind which sometimes appear in scrophula, it might be dangerous to make use of repellent applications, at the same time that it is not often advisable to promote their suppuration, from their treatment, when opened either by nature or art, proving always very troublesome. And such swellings, it is well known, may remain for a great length of time, without any sort of risk to the patient; so that, in general, we think it most prudent never to meddle with them.

In Lues Venerea too, as we are possessed
of

of almost a certain antidote for the disorder; and as buboes, and other inflammatory swellings that occur in it, are commonly, when opened, exceedingly troublesome, and very difficult of cure; it is perhaps, for these reasons, the most prudent practice always to attempt their discussion: And this more especially, as their being brought to supuration, can by no means free the patient from the disorder; but leaves him, on the contrary, under as great a necessity of undergoing a mercurial course, as if no evacuation from the tumor had taken place.

In cases of Erysipelas likewise, which is a *species* of inflammation, but which is easily distinguished from real phlegmon by the colour of the inflamed part not being of such a bright red, but having a more dark copper-like appearance; and by any swelling that occurs in it, not rising evidently into a tumor, but being rather diffused, and ending as it were imperceptibly upon the surrounding parts: in such cases, it appears always to be the best practice to attempt their discussion; as, when swellings

lings of this nature come to a suppuration, they seldom either afford good pus, or heal kindly when opened.

So that, the only cases in which we should not attempt the resolution of inflammatory swellings, are such, as are either of a scrophulous nature, or appear to be evidently critical in some disorder; and this, whether in fevers, or other internal disorders of even a chronic nature. But whenever the exciting cause has been of an obvious external kind, and especially when the complaint is not as yet far advanced, we may then always proceed with safety and freedom in what is termed the Repelling Method.

§ 2. *Of the Remedies to be employed for the Resolution of an inflamed Part.*

IN cases of incipient phlegmon, when the symptoms are not so violent as to have affected the general system, topical remedies merely, with a due attention to regimen, often answer in dissolving them. But when, on the contrary, the inflammation
runs

runs high, with general symptoms of fever, it then becomes necessary at the same time to pay attention to these.

In every case of phlegmon, it has been the prevailing practice to have recourse to warm fomentations and cataplasms: but, as warm emollient applications of all kinds have the most powerful influence in promoting suppuration, as will hereafter be more particularly taken notice of, and as is allowed indeed by every practitioner, the use of such remedies, while the resolution of swellings is practicable, must therefore, it is evident, be attended with much impropriety.

The first circumstance to be attended to, in every case of phlegmon, when resolution of the tumor is to be attempted, is the removal of all such exciting causes of the disorder as may happen to present themselves: Such as, extraneous bodies in wounds; pieces of fractured bones; luxations; and, in short, whatever may appear to have had the least influence in keeping up the inflammation.

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Of the various applications usually employed for an inflamed part, those of a sedative nature are chiefly to be depended on; and next to these, emollients.

Of the former kind, may be considered all the different preparations of lead dissolved in vinegar; and it is presumed too, that the vegetable acid, by itself, acts in the same manner.

As emollients, all the bland expressed oils are often used with advantage; as also ointments of a soft consistence made with any of these and pure wax.

§ 3. *Remarks on the Preparations of Lead, and other sedative Applications.*

It is not, in any part of this dissertation, proposed to enter into minute discussions on the *modus operandi* of such medicines as are recommended; as that would not only extend the length of it much farther than is intended, but to many would probably appear to be very superfluous. It may not, however, in some circumstances, be improper, to deviate so far from the general plan,

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as to render as obvious as possible, the propriety of what at any time may be advanced: for mere practical assertions, unsupported by some foundation in reason, can never, it is imagined, prove either so useful or so agreeable as they might otherwise be.

With respect to the use of sedative applications in cases of external inflammation, it is not by any means intended to recommend, universally, the whole class of medicines which in different circumstances are found to be of this nature. Thus opium, though one of the most powerful of all sedatives, yet, as its external application to the human body is always attended with some degree of irritation, however useful it may at times have been found in some particular species of inflammatory affections, it will never probably, as an external application, become of general use in such disorders.

Warm emollient fomentations, too, though they no doubt are very powerful sedatives, as tending, from their nature, more effectually to remove tension, and

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pain,

pain, than perhaps any other remedy with which we are acquainted ; yet, from a great deal of experience of their effects, in different local inflammations, I have long been convinced, that when the resolution of inflamed tumors is wished for, such applications are always very improper: As they constantly either tend to bring swellings of this nature to suppuration, that might otherwise have probably been dissipated ; or, when not attended with this effect, they very commonly induce such a relaxed state of the parts, as renders the thorough removal of the disorder always exceedingly tedious.

Upon a proper examination of all the different articles said to be of a sedative nature, similar exceptions to their use in every case of phlegmon might perhaps be made to the greatest part of them.

So far, however, as my experience goes, together with that of many others of this country, as well as of Mr Goulard and other French practitioners, no such reasons have occurred against the use of lead and
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its preparation in such cases. On the contrary, indeed, it may be certainly affirmed, that, as discutients in inflamed tumors, they prove more serviceable by much than any other application in ordinary use.

And although Mr Goulard, in extolling a favourite remedy, has been induced to assert its effects to be more general and more considerable than they probably will ever be found to be; yet still the world is much indebted to him: not, however, for a *new* medicine, as every preparation of lead, recommended by him, was formerly, in some form or other, known to every practitioner; but for introducing, to a *more general* use, a very effectual remedy for the discussion of inflammatory swellings.

With respect to the preparations of lead being here said to be of a *sedative* nature, the term, it is imagined, is far from being improperly employed; not only from many of the more striking effects of lead, when taken internally, being all evidently of a sedative tendency, but from its im-

mediate and obvious operation when applied externally to an inflamed part : Which when the preparation is of a proper strength, is almost constantly an abatement of the different symptoms of pain and tension, at the same time that there is communicated an agreeable soothing sensation to the part,

Having likewise, to a certain degree, in particular circumstances, observed the same effects from the vegetable acid, it could not, it was supposed, be so properly taken notice of under any other head.

Mr Goulard, in his dissertation upon the external use of the preparations of lead, recommends them as almost equally proper in every stage of inflammation. Even when tumors have come to a full suppuration, a proper use, he says, of his *Extractum Saturni*, not by its repelling quality, for he will not allow it to be possessed of such, but by its occasioning an exudation of the contained matter, renders it almost always unnecessary to open them.

The same remedy is likewise mentioned
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by him as a proper application in every case of gangrene. From my own experience, however, of the preparations of lead, I cannot take upon me to recommend them in either of these cases. I have indeed made trial of them in gangrenous cases, but without any evident effects being produced by them; and, however strongly they may be recommended by Mr Goulard, in the cure of abscesses or collections of completely formed pus, I must own, that, in this state of the disorder, I never thought of employing them. So that it is in the real inflammatory state of the complaint only, and while a cure by discussion may still be expected, that such applications are here meant to be advised.

From the known deleterious effects of lead when taken into the system, an objection has, by some authors, been raised against a free use of the preparations of it, even when externally applied.

That lead, in different forms, has, upon being taken into the constitution, frequently proved poisonous, there is no reason
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son to doubt; and that, in some particular instances, disagreeable symptoms have occurred, where some of the preparations of lead have been externally used, is also pretty certain. That such bad symptoms, however, if they were not merely accidental from some other cause, are, at least in general, very rare effects of the remedy in question, I can venture, I think, certainly to affirm. For in all the experience I have had of the external application of lead and its preparations, and in many cases, particularly of burns, I have known the greatest part of the whole surface of the body covered with them for days, nay, even for weeks together, I do not recollect a single instance of any disagreeable symptom being ever produced by them.

Of all the preparations of lead for external use, *Saccharum Saturni* is perhaps equal, if not superior, to any, as it has all the advantages of the others, with this difference, that, in it, we are much more certain of the exact strength of our preparation, than we can ever be with any other.

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For although in the *Extrait de Saturn* of Goulard, as likewise in the *Acetum Lythargirites* of our Dispensatories, which are both, it may be observed, very nearly the same, we may be very certain of the quantity of lead employed to the vinegar; yet we can never, but by crySTALLISATION, know exactly, or even nearly, how much of the former the menstruum may have dissolved, as that must depend upon a variety of accidents, and particularly on the strength of the acid, and exact degree of heat employed; which are circumstances we have not always in our power exactly to regulate. For these reasons, therefore, the salt, or sugar of lead as it is called, should, for external use, be always preferred.

The best mode of applying the remedy seems to be in the form of a watery solution; for the preparation of which, the following proportions are, in general, found to answer:

R. Sacchar. saturn. unc. ss.

Solve in acet. pur. unc. iv.

Et adde aq. fontan. destillat. lb. ii.

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The addition of vinegar renders the solution much more complete than it otherwise would be; and without it, indeed, when such a large proportion of the lead is used, a considerable part of it commonly separates and falls to the bottom.

This is the form which I commonly employ for the use of this remedy; but as Goulard's extract and water are preferred by many, I think it right to mention his method of preparing them.—The extract is prepared as follows.

To each quart, containing thirty-two ounces, of French wine-vinegar, add one pound of litharge of gold. Put them into a glazed earthen vessel, and let them simmer for an hour, or an hour and a quarter, upon a gentle fire, taking care to stir them during the ebullition with a wooden spatula: The vessel is now to be removed from the fire; and the faces being allowed to subside, the liquor upon the top must be poured into bottles for use.

The water used by Mr Goulard, which he terms the *Vegeto-mineral water*, is prepared

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pared by adding two tea-spoonfuls, which he specifies to be one hundred drops, of this extract, to a quart of water, and four tea-spoonfuls of brandy. The quantity of the extract and brandy to be diminished or increased according to the nature of the disorder, or degree of sensibility in the part affected.

In making use of either of these solutions in cases of inflammation, as it is of consequence to have the parts affected kept constantly moist, cataplasms prepared with them and crumb of bread, in general answer that intention exceedingly well. But, when the inflamed part is so tender and painful as not easily to bear the weight of a poultice, a circumstance by no means uncommon, pieces of soft linen, moistened with the solution, answer the purpose tolerably well: Although, when this objection to the use of cataplasms does not occur, as they retain the moisture longer, they should always be preferred. These applications should be always made when cold, or at least with no greater warmth than is merely
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necessary for preventing pain or uneasiness to the patient; they should be kept almost constantly at the part, and renewed always before turning stiff or hard.

Among the remedies recommended for external use in cases of inflammation, we mentioned Emollients. These, when the tension and irritation on the skin are considerable, prove often very serviceable: the parts affected, being, in this state of the disorder, gently rubbed over with any of the mild expressed oils two or three times a-day, the tension, irritation, and pain, are thereby much relieved, and the discussion of the tumor thereby greatly promoted.

In every case of inflammation, indeed, emollient applications would afford some relief. But as the preparations of lead already recommended, prove, in all such disorders, still more advantageous; and as unguents of every kind tend considerably to blunt the action of lead; these two sets of remedies should as seldom as possible be allowed to interfere with one another: And emollients should, accordingly, never
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be prescribed but when the circumstances already mentioned, of irritation, tension, and pain, are so considerable as to render their application altogether necessary.

Unctuous substances have likewise been condemned in cases of this nature, but upon a different principle; viz. from their tending to stop the pores, and consequently to obstruct the perspiration of those parts to which they are applied. It is not, however, probable, that in this way they could prove very hurtful in preventing the resolution of inflammation; which must always, it is imagined, be effected in a very different manner than by perspiration.

When the part affected with inflammation is not very tender, or when it lies deep, applications of the vegetable acid are often had recourse to with considerable advantage; and the most effectual form of using it seems to be by way of cataplasm, made with the strongest vinegar and crumb of bread. In such cases, too, I have sometimes thought, that an alternate use of this

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remedy,

remedy, with the saturnine solution already recommended, has produced more beneficial effects, than are commonly observed from a continued course of any one of them.

At the same time that these applications are continued, bleeding with leeches, or cupping and scarifying as near as possible to the part affected, proves generally very useful, and in no case of local inflammation should ever be omitted. In all such cases, the whole body, but more especially the diseased part, should be preserved as free as possible from every kind of motion; and, for the same reason, the necessity of a low cooling diet in every inflammatory disorder, appears very obvious, as does also a total abstinence from spirituous and fermented liquors.

In light cases of inflammation, a due perseverance in the several remedies we have mentioned, will, in general, be found sufficient for every purpose. But, when there is likewise a full, hard, or quick pulse, with other symptoms of fever, general blood-
letting

letting becomes then always necessary ; the quantity of blood taken away being always to be determined by the violence of the disorder, and by the age and strength of the patient. The use of gentle laxatives, too, together with cooling diaphoretic medicines, are always attended with very good effects.

These evacuations being premised, the next object of importance is to procure ease and quietness to the patient ; which is often, in cases of inflammation, of more real service than any other circumstance whatever. The most effectual remedy for this purpose is opium ; which, when pain and irritation are considerable, as in extensive inflammations very frequently happens, should never be omitted. In large wounds, especially after amputations and other capital operations ; in punctures of all kinds too ; large doses of opium are always attended with remarkably good effects. In all such cases, however, opium, in order to have a proper influence, should, as we have observed, be administered in

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very large doses: otherwise, instead of proving serviceable, it seems rather to have the contrary effect; a circumstance which is, perhaps, the chief reason why opiates in general have been very unjustly condemned in every case of inflammation.

By a proper attention to the different circumstances we have mentioned, in the course of three or four days, and sometimes in a shorter space of time, the resolution of the tumor will in general begin to take place; at least before the end of this period, it may for the most part be known how the disorder is to terminate. If the heat, pain, and other attending symptoms, abate; and especially if the tumor begins to decrease, without the occurrence of any gangrenous appearances; we may then be almost certain, that, by a continuance of the same plan, a total resolution will in time be effected.

But, on the contrary, if all the different symptoms rather increase; and especially, as was formerly remarked, if the tumor turns larger, and somewhat soft,
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with an increase of throbbing pain; we may then with tolerable certainty conclude that suppuration will take place: And should, therefore, immediately desist from such applications as were judged proper while a cure was thought practicable by resolution; and endeavour to assist nature, as much as possible, in the formation of pus, or what is called *maturation* of the tumor.

For this reason, in every case of inflammation, the different evacuations, especially blood-letting, which may have been advisable while we were attempting to remove the swelling by discussion, should never be carried a greater length than may be merely necessary for *moderating* the several febrile symptoms. For, by reducing the system too much, if a suppuration afterwards takes place, its progress in that case becomes always much more slow and uncertain than it would have been had a due attention been paid to these evacuations; nor will the patient be afterwards so able to bear, especially if

it is considerable, the discharge that must necessarily ensue from opening the abscess.

Although it was remarked above, that if, in general, in the course of three or four days, there do not some appearances of resolution occur, suppuration will most probably take place; and that, consequently, a change of treatment becomes necessary: yet this, it must be observed, is only to be taken in a limited sense. For the time of desisting from one mode of treatment and commencing the other, must always depend very much on the seat of the inflammation; such disorders being in some parts much more apt to terminate in a speedy suppuration than in others.

Thus, in the cellular membrane, as well as in every soft part, inflammatory tumors of all kinds terminate much more readily and quickly than when any of the tough membranous parts are affected. Hence, in the coats of the eye and of the testicles, very violent inflammations often continue for many days, nay, even for weeks, without
either

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either abating in the symptoms, or ending in suppuration. In such cases, therefore, that go on even to a very considerable length, we need not be afraid of continuing the discutient applications for a much longer time than what, in general, would otherwise be proper; and should never be deterred from using them, unless either an evident suppuration has taken place, or there appears from the violence of the symptoms a considerable risk, either of gangrene, or of some incurable obstruction: In which event, we must no doubt always endeavour to promote the suppuration of the tumor.

SECTION III.

Of SUPPURATION.

§ 1. General Remarks on Suppuration.

BY the term *Suppuration*, in general, is understood, that process, by which the contents of tumors and ulcers are converted into a whitish, thick, opaque, somewhat fetid matter, termed *Pus*. This, by many, has been supposed to be effected by a natural exertion of the system; but art undoubtedly can, in all such cases, afford a great deal of assistance. Before going on, however, to consider the treatment necessary for this purpose, it will not be improper to premise an examination of the different opinions that have been offered with respect to suppuration; and this the more especially, as it will tend to elucidate
many

many of the observations that will afterwards occur.

§ 2. *Of the Formation of Pus.*

By many authors, Pus has been imagined to consist in a dissolution of the blood-vessels, nerves, muscles, and other solids, in the fluids of the parts in which inflammatory tumors occur.

This is the opinion of Boerhaave*, Platner†, and many others.

Others, again, have supposed purulent matter to be formed in the blood; and that it is secreted, in its complete state, into Abscesses, Wounds, and Ulcers.

The first of these opinions seems sufficiently confuted from this consideration, that very extensive wounds and ulcers continue often for a great length of time, without being attended with any loss of substance; which they necessarily always would be, if the several discharges afforded by them were found to consist in a dissolu-

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* Aphorism, 387.

† V. Institutiones Chirurgiæ, § 54, &c.

tion of the solids of the parts in which they are situated. Issues, too, afford instances of the same kind; by their yielding, for a number of years, even a daily discharge of pus, without producing any evident alteration whatever in the state of the solids.

The other opinion has probably arisen from abscesses being sometimes observed to form suddenly, and without any evident previous inflammation; so that the matter contained in them has been supposed to be at once deposited from the blood in a state completely purulent.

Previous, however, to the formation of pus in any part, if due attention was given, some degree of inflammation, it is probable, would be always observed. But as inflammation, in many cases, occurs in only a very slight degree, and without being attended with much pain, it may often, very readily, have proceeded to the state of suppuration, without being sooner observed by the patient: and this we know, in internal abscesses especially, is not unfre-

frequently the case. We are told, indeed, of very quick translations of matter from one part of the body to another : but if such instances do ever occur without the intervention of inflammation, a circumstance, however, much to be doubted; yet, still, it is no material objection to our argument, as such cases can never be considered in any other light, than as *particular*, and very *unusual*, exertions of the system.

It may be remarked also, that if purulent matter frequently existed in the blood, as it undoubtedly would do if the opinion now under consideration was well founded; in some cases, at least, it would surely have been liable to detection : but no matter of this kind has, it is imagined, ever yet been discovered in it. Such pus, too, as is found in wounds and ulcers, would not at first appear thin and serous, as it always does, if deposited completely formed from the blood.

The most probable opinion hitherto advanced with respect to the formation of pus, is, that it is a change produced by

a certain degree of fermentation, upon the ferous part of the blood, after its secretion into the cavities of ulcers and abscesses; and this in consequence either of the natural heat of the part, or of heat artificially applied.

That it is the serum only of blood, which is proper for the formation of pus, and that it is produced by the application of a certain degree of heat, was first rendered very probable by an experiment related by Sir John Pringle in the appendix to his treatise on the diseases of the army*; and it was afterwards fully confirmed by several others of the same nature made by Mr Gaber, and related by him at full length in the second volume of the *Acta Taurinensia*.

Sir John Pringle found, that pure serum, kept for some days in a furnace regulated to the human heat, after becoming turbid, dropped a white purulent sediment. The crassamentum of blood, in the same space of time and degree of heat, changed from a deep crimson to a dark
livid

* Experiment xlv.

livid colour; so that, when any part of it was mixed with water, it appeared of a tawny hue. Serum, digested with a few red globules, and in the same circumstances, was of the same colour.

Mr Gaber's experiments, as we have already remarked, all tend to elucidate and corroborate the same opinion, namely, That pure unmixed pus is formed only from serum. The addition of red globules to serum, and crassamentum digested by itself, exhibited much the same appearances as those quoted above from Sir John Pringle*. Fat, which is thought by many to be a principal ingredient in the composition of pus, was found by Mr Gaber, when exposed to the above-mentioned trial, to exhibit no appearances of that matter; nor were any of the fleshy parts, when digested either with serum or water, convertible into it.

From all which, it may be concluded, that the addition of any of these articles to serum, instead of rendering it capable of producing good pus, has always the
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* V. Act. Taurin. vol. ii. p. 87.

very contrary effect; and that it is pure serum alone from which that matter can be obtained.

It may here be remarked, once for all, that what is meant by *pure serum*, is not that finer halitus, which, in a healthy state of the body, is constantly secreting into the different cavities, merely for the purpose of lubricating and keeping them moist, and which is again generally absorbed; but it is a serous fluid, of the same nature with that which separates spontaneously from blood, upon that fluid being allowed to remain at rest when discharged either from an artery or a vein: And in which, though there is never supposed to be any mixture of red globules, yet there is certainly always more or less of the coagulable lymph; some proportion of which seems absolutely necessary for serum to be possessed of, to render it capable of producing pus.

The several effects we have already mentioned as being produced by digestion upon serum out of the body, will very readily occur,

occur, it is presumed, on the same causes being applied to it when collected in the cavities of ulcers and abscesses; and, from the result of the different experiments alluded to, it is probable, that, according as it is there deposited more or less free from mixtures of fat, red globules, and other substances, it will yield pus of a more pure or vitiated nature.

This account of the formation of pus is the most satisfactory, it is conceived, of any that has as yet been given; and this more especially, as it renders evident, as will afterwards appear, the operation of all the remedies commonly found most effectual in promoting suppuration.

§ 3. *Of the necessary Remedies for promoting Suppuration.*

WHEN, for the reasons we have already enumerated, it is judged most proper to use means for promoting the suppuration of an inflamed part, then all the remedies we have been recommending with a view to resolution, must immediately be laid aside.

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No farther evacuations, as was observed, are to be admitted; and if the patient has been much weakened, a full allowance in point of diet, and even a proportion of wine, may probably be necessary.

For although a very violent degree of inflammation proves always unfavourable to suppuration, by promoting the progress of Gangrene, as will afterwards be taken notice of; or as tending to propel into the cellular membrane, which in general is the seat of abscesses, a quantity of red globules, together with the serum of the blood, which alone ought to be extravasated for the formation of good pus; yet, in order to have a due quantity of serum secreted for the purpose of suppuration, and at the same time to have its fermentation properly carried on, the different inflammatory symptoms must never be allowed to subside suddenly; otherwise an abscess containing very ill-digested matter, as it is termed, will most probably be produced.

Thus we find in small-pox, which are so many small phlegmasiæ, that altho' blood-letting

letting and other evacuations to a certain extent prove frequently useful, yet a proper suppuration never takes place if the patient has been much debilitated by any considerable discharge; and the same thing very certainly occurs, in similar circumstances, in abscesses of a larger size. The patient therefore should neither be allowed to live so fully as might raise the inflammation too high, nor should he be reduced in such a manner, by evacuations and low diet, as to induce the contrary extreme.

Having in this manner endeavoured to procure a discharge into the cellular membrane, of serum proper for the formation of pus, the next circumstance requiring attention is, that a due fermentation be excited, and preserved in it, so that its progress towards perfect muturation may go easily and regularly on.

This indication is chiefly effected by the use of such applications as tend to preserve a proper and constant degree of heat in the part: in so much, that it seems probably owing to a want of attention to this cir-

cumstance, that the greatest part of all the softer swellings do not come to suppuration; and that according to the degree of heat in which they are kept, whether from the proportion of inflammation by which they are at first produced, or from the natural heat of the part they are seated in, they form into tumors of melicerous, steatomatous, and other consistences. For unless a due degree of heat be applied and continued, serum being merely extravasated will never produce pus; hence, in ascites, and other dropical disorders, large quantities of it remain in this state for a great length of time, without any suppuration taking place; and that merely from such collections being produced without any inflammation at first, so that no assistance is afforded from any degree of *preternatural* heat; and the *natural* heat of such parts, in which serous collections usually occur, is seldom considerable enough to produce such an effect.

The degree of heat best suited for promoting suppuration is not perhaps easily to be determined; but the more considerable

able it is, at least to a certain extent, the more quickly, it is probable, pus will be formed.

This we find, indeed, from Mr Gaber's experiments, is so far the case*: and the observation is likewise confirmed by daily experience in every case of phlegmon; in which the tumor, *cæteris paribus*, always proceeds more quickly or more slowly to suppuration, as it is seated nearer to, or at a greater distance from, the heart. Hence, in any of the extremities, particularly in the legs, inflammatory disorders proceed very slowly to suppuration; while those of the trunk, and about the head, go on very quickly. Thus many cases of inflammation of the ears and throat frequently arrive at a thorough maturation, and even burst of themselves, in the course of forty-eight hours from the first attack.

This consideration, therefore, should make us particularly attentive to the preservation of a due degree of heat in every

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* When speaking of pus being formed in, and subsiding from, serum digested in a degree of heat equal to that of the human body, Mr Gaber says, "*Eo autem citius subsidebat, quo calor erat major.*" *Loco citato.*

inflamed part intended to be brought to suppuration; but more especially in situations very distant from the heart, where artificial heat is most wanted, and where, by a proper application of it, almost every tumor, though situated on the extremities, might probably be made to suppurate in the same space of time with those in the ears and other parts just now taken notice of.

I am not only convinced, by experience, of what is here asserted respecting the very singular advantages to be obtained from a due attention to this matter; but also, from a course of experiments I was engaged in some years ago upon the same subject. But as these turned out almost exactly similar to those related by Mr Gaber, no exact account was preserved of the result of them: this, however, is particularly remembered, that in a heat equal to 100° of Fahrenheit's thermometer, the deposition of matter from serum took place in little more than half the time that was requisite for the same effect at even eighty degrees.

It was the prosecution of these experiments,

ments that first suggested to me the probability of the great advantages to be derived from the preservation of a due degree of heat in inflamed parts; and I have accordingly, on many occasions since that time, found the treatment of such cases go on much more easily than otherwise I should either have expected or have been able to account for.

Warm fomentations and cataplasms are the means commonly employed for the application of heat to an inflamed part; and when these are regularly and frequently renewed, nothing, it is probable, can more effectually answer the purpose. But, in the ordinary manner in which they are applied, as the cataplasms are renewed only once, or at most twice, in the day, they must always, it is imagined, do more harm than good. For as soon as the degree of heat they were at first possessed of is dissipated, the moisture kept up by them, with the consequent evaporation that ensues, must always render the part a great deal colder than if it had been merely

wrapped in flannel, without the use of any such application.

In order to receive all the advantages of such remedies, the part affected should be well fomented with flannels pressed out of any warm emollient decoction, applied as warm as the patient can easily bear them, continued at least half an hour at once, and renewed four or five times a-day.

Immediately after the fomentation is over, a large emollient poultice should likewise be applied warm, and renewed every second or third hour at farthest. Of all the forms recommended for emollient cataplasms, a common milk-and-bread poultice, with a proportion of butter or oil, is perhaps the most eligible; as it not only possesses all the advantages of the others, but can at all times be more easily obtained.

Roasted onions, garlic, and other acrid vegetables, are frequently made use of as additions to maturing cataplasms: When there is not a due degree of inflammation in the tumor, and when it appears probable

bable that the suppuration would be quickened by having the inflammatory symptoms somewhat increased, the addition of such substances may then be of service; but when stimulants are necessary in such cases, a small proportion of strained galbanum, or of any of the warm gums, dissolved in the yolk of an egg, and added to the poultices, is not only a more elegant, but a more certain form of applying them. In some cases, too, the same intention may be more certainly accomplished, by combining a small quantity of cantharides with any application intended to be employed.

Whenever the inflammation, however, takes place to a proper degree, such stimulating substances can never be necessary; and from the different observations we have already made, there is reason to think, that in many instances they might even do mischief.

In such tumors as, from their being attended with little or no inflammation, are commonly said to be of a cold nature, as they are generally indolent, and proceed

very slowly to suppuration, plasters composed of the warm gums are often employed with considerable advantage: in such cases, they are not only of use by the stimulus and irritation they occasion, but by the heat which they tend to preserve in the part. They become particularly necessary, when the patient, by being obliged to go abroad, cannot have cataplasms frequently enough renewed, or so conveniently applied; but when some such objection does not occur, the latter, for very obvious reasons, should always be preferred.

Dry cupping, as it is termed, that is, cupping without the use of the scarificator, upon, or as near as possible to, the part affected, is frequently used with advantage for promoting the suppuration of tumors: it is only, however, in such as these last mentioned, where there seems to be a deficiency of inflammation, that it can ever either be necessary or useful; but in all tumors of a real indolent nature, and where there is still some probability of a suppuration

suppuration being effected, I have seldom observed such good effects from any other remedy.

These different applications, under the restrictions we have taken notice of, being continued for a longer or shorter time, according to the size of the tumor, its situation and other circumstances, a thorough suppuration may, in general, at last be expected.

Matter being fully formed in a tumor, is known by the remission of all the symptoms which takes place: the dolor pulsatilis, that before was frequent, now goes off; and the patient complains of a more dull, constant, heavy pain: the tumor points at some particular part, generally near to its middle; where, if the matter is not encysted, or deep seated, a whitish yellow appearance is observed, instead of a deep red that formerly took place; and a fluctuation of a fluid underneath, is, upon pressure, very evidently discovered. Sometimes, indeed, when an abscess is thickly covered with muscular and other parts;

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and when, from concurring circumstances, there can be little doubt of their being even a very considerable collection of matter, yet the fluctuation cannot be readily distinguished: but it does not often happen, that matter is so very deeply lodged as not to be discovered upon proper examination.

This, however, is a circumstance of much importance in practice; and deserves, it may be remarked, more attention than is commonly given to it. In no part of the surgeon's employment, is experience in former similar cases of more use to him than in the present; and however simple it may appear, yet nothing, it is certain, more readily distinguishes a man of observation and extensive practice, than his being able easily to detect collections of deep-seated matter: whilst nothing, on the contrary, so materially affects the character of a surgeon, as his having, in such cases, given an inaccurate or unjust prognosis; for the event, in disorders of this nature,

nature, comes generally at last to be clearly demonstrated to all concerned.

Together with the several local symptoms of the existence of pus, already enumerated, the frequent shiverings that patients are liable to on its first formation may likewise be mentioned; these, however, seldom occur so as to be distinctly observed, unless the collection is considerable, or seated internally in some of the viscera. But, in every large abscess, they are almost constantly met with; and, when they appear along with other symptoms of suppuration, they tend always to ascertain the real nature of the disorder.

§ 4. *Of Abscesses, and of the proper Period for opening them.*

IN the treatment of abscesses, it is a general rule, not to discharge their contents till a thorough suppuration has taken place; for, when laid open long before that period, and while any considerable hardness remains, they commonly prove troublesome, and seldom heal kindly.

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In some cases, however, it is necessary to deviate from this general rule, and to open them a good deal sooner; particularly in all such critical abscesses as occur in malignant fevers. In the plague, too, we are commonly advised to open such tumors as soon as they are tolerably advanced, and not to wait till they are fully matured; for, in such instances, it is found, that the patient receives more benefit from an early discharge of matter, than he can suffer harm from having any swelling of this nature somewhat prematurely laid open.

Abscesses, too, situated on any of the joints, or upon either of the large cavities of the breast and abdomen, and more especially when they seem to run deep, should always be opened as soon as the least fluctuation of matter is discovered. For, when the resistance is on every side equal, they will just as readily point internally as outwardly; and the consequence of a large abscess bursting into either of the large cavities especially, is well known
most

most frequently to prove fatal: An instance of which, in the following case, I had some time ago an opportunity of observing, which, with very little attention, might have been prevented.

A surgeon of eminence, and of very extensive practice, was applied to by a young healthy-looking man, with a large abscess upon the left side of his chest. A fluctuation of a fluid was, upon pressure, very evidently discovered; and it was agreed, by other two practitioners who were present, that an opening should be made to give vent to the matter. But the operator being much engaged in business, could not fix on an earlier period for doing it than the third day from the patient's first applying to him: unluckily, however, the patient died suddenly in his bed, the night before the abscess was to have been opened.

On examining the body, the tumor was found to have disappeared entirely, without any external opening being observed; and, on laying open the thorax,
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the matter was observed to have burst inwardly upon the lungs, and hence had produced immediate suffocation.

In all other cases, however, except in those alluded to, the rule in opening abscesses is, as was already remarked, to allow a thorough suppuration to take place, before any vent whatever be given to the matter; and it being then determined to lay the collection open, the next question that occurs, is with respect to the manner of doing it.

§ 5. *Of the different Methods of opening Abscesses.*

Two different methods of opening abscesses have been recommended by authors, namely, by Caustic and Incision. To the former, however, there are many objections: It is not attended with any superior advantage to a simple incision; upon a tender inflamed part, it gives much more pain; it is more slow in its effects; and the surgeon never has the command of it so entirely as to destroy those parts he would

would incline, and no more; for all the different kinds of caustic, notwithstanding the greatest attention, will sometimes spread farther, and penetrate deeper, than was either wished for or intended. Of this I, some years ago, saw a very remarkable instance; and in a situation, too, in which an accident of this nature would not be thought likely to occur.

Caustic was applied to the anterior part of the scrotum, with a view to produce a radical cure, in a case of hydrocele: but whether there had been very little water collected, or whether a preternatural adhesion of the testis to the tunica vaginalis had, at this part, been produced, is uncertain; but the caustic penetrated to the body of the testicle, and gave the patient, as may readily be imagined, a great deal of very excruciating pain. It did, to be sure, accomplish a cure: but the danger attending such an accident, although it probably might not frequently occur, is, I should imagine, a very strong objection to the use of caustic in all such cases; and it is now
indeed

indeed very generally, I believe, laid aside, the preference being justly given to the scalpel.

When tumors are not very large, they are commonly opened by a longitudinal incision with a lancet or scalpel. This should be so directed as to terminate at the most depending part of the swelling, and should be of such a size as may seem sufficient for giving a free discharge to the matter; about two thirds of the length of the tumor is, in such cases, generally reckoned extensive enough.

When abscesses, however, are of any considerable extent, they are commonly laid open through their whole length; and when the teguments have been greatly stretched, it is advised by many to take part of them away altogether. But this is a practice which seldom, or perhaps never, ought to be followed; as there are scarcely any abscesses so large as to destroy entirely the contractile power of the integuments; and while this remains in any degree in a part, there are still hopes of its
again

again recovering its former dimensions. It is surprising indeed to what extent this observation applies. In many instances, the skin has been known to recover its tone entirely, after having been for a time completely deprived of it.

These are the several modes of opening abscesses by the scalpel. There are different inconveniences, however, found to attend all of them; and particularly, that as soon as an incision is made into a tumor, the whole contained matter is discharged suddenly and at once: Whereby, when the collection is considerable, faintings and other disagreeable symptoms are frequently induced; and what, in all large swellings especially, is constantly attended with very bad effects, a free admission of air is thereby given to a great extent of ulcerated surface.

The bad effects of air on every species of sore, is well known to every practitioner; but its pernicious influence, on a newly opened abscess, is often really astonishing. It first occasions a total change in the nature

ture of the matter, from perhaps a very laudable pus to a thin ill-digested sanies; and afterwards brings on a quickness of pulse, debilitating sweats, and other symptoms of hectic fever, which, for the most part, when the collection has been considerable, either carries the patient off in a short time, or terminates in a confirmed phthisis, which sooner or later proves fatal.

This I have, in a great many instances, had occasion to observe; and that, in such cases, it is the admission of air alone which produces all these bad symptoms, is rendered highly probable from this circumstance, that of a great number of patients who have laboured under such disorders, many have remained for a very considerable time, with large abscesses fully formed, and without having any one symptom of hectic whatever: but when they have ever exceeded an ordinary or moderate size, I have seldom known an instance of their being opened by a large incision, without almost every hectic symptom taking place; and this generally in less than forty-eight
2 hours

hours from the time of their being laid open.

In what manner the admission of air to an abscess operates in producing such a powerful and sudden effect, is perhaps difficult to determine. The irritation produced by it, on a large extent of ulcerated surface, may probably be one reason:—By acting as a stimulus on the extremities of the different absorbents opening into the sore, it may occasion a larger absorption of matter than would otherwise take place;—and it may likewise, by rendering the matter more putrid than before, give even to the same quantity absorbed greater activity in producing the different symptoms of hectic.

That this conjecture is well founded, with respect to an increase of putrescency being the principal cause of the bad effects produced by the admission of air to sores, is, from different circumstances, at least exceedingly probable. For, in the first place, altho' the discharge from abscesses is commonly mild, and free from any disagreeable fetor

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on their being newly laid open; it almost constantly becomes thin, acrid, and more fetid in the course of a few dressings, which is a certain proof of a greater degree of putrescency having then taken place. On this principle, too, we may account for the operation of many of the remedies commonly employed in the treatment of sores; and more especially of that powerful antiseptic, fixed air, which by many practitioners have been so much extolled.

We know from experiment likewise, that other substances, as well as that part of the blood from which pus is formed, is rendered putrid, and more quickly so, by the admission of air, than otherwise, while in the same degree of heat, they probably ever would be*.

From these considerations, therefore, the greatest caution appears to be necessary, for preventing, as much as possible, the admission of air to the internal surface of every collection of matter; and this, we
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* *Vide* Sir John Pringle's and Mr Gaber's Experiments on this subject. *Loc. cit.*

may remark, is very easily and effectually done, by opening collections of this kind by means of a seton or cord, instead of having recourse either to caustic or the scalpel.

This method of discharging the contents of tumors, by the introduction of a cord, is attended with every advantage of that by incision: it, moreover, empties the swellings, of whatever size they may be, not suddenly, but very gradually; it effectually prevents a free admission of air; it is not commonly attended with near so much pain and inflammation; nor is the cicatrix occasioned by it ever inconvenient, or unseemly, which it frequently is after a large incision.

In the Royal Infirmary of this place, large abscesses, as well as those of a smaller size, used formerly to be opened in the usual manner, by extensive incisions: the consequences were such as have been already related; many of the patients were thrown into such obstinate hectic fevers as they never recovered from; and others, though they did get better at the time, were com-

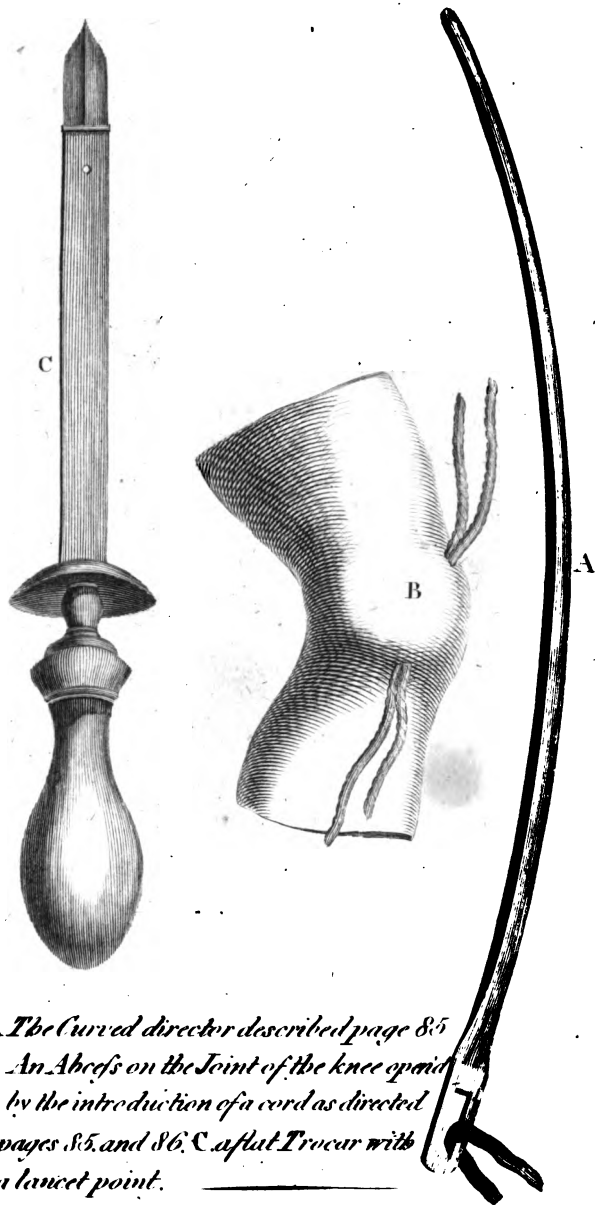
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monly so much debilitated as to be very liable to be seized with other disorders, from which they seldom entirely recovered.

This was the most frequent result of our treatment of large abscesses by incisions; and similar consequences will still be found to prevail where this practice is continued: but since the seton came to be generally used here, few or no such disagreeable circumstances have occurred. Many of the largest tumors have been opened in this manner: and when the patients are otherwise in good health, they very commonly do well; and with this additional advantage, that a cure is frequently obtained in little more than half the time usually found necessary after a large incision has been employed.

The opening of abscesses by the introduction of a seton has been mentioned by different authors, and in small collections of matter has been frequently practised; but never so generally, I imagine, as it has been here within these last twenty years, both in the
hospital



A The Curved director described page 85

*B An Abscess on the Joint of the knee opened
by the introduction of a cord as directed
pages 85. and 86. C a flat Trocar with
a lancet point.*

hospital and in private. And in justice to Mr James Rae, surgeon in this place, it must be acknowledged, that we are chiefly indebted for it to his recommendation, he having first proposed the general use of setons in such cases, at the same time that he invented a set of instruments, by which they are easily inserted in almost all abscesses, however deep seated, and among whatever parts they may run; and this too without any risk of wounding the large blood-vessels, nerves, or tendons, in the neighbourhood.

Several sets of these instruments, for abscesses of different sizes, are kept in the Infirmary here: they fulfil the intencion, as was already observed, exceedingly well, and are a very ingenious contrivance. But as the curved director we have delineated in the plate, answers the purpose equally well, and is in itself fully more simple, it will for that reason be in general found more convenient. It is used in the following manner.

An opening sufficiently large for the cord, being made with a lancet in the superior

perior part of the abscess, the director, threaded with a cord of candle-wick cotton, or of soft silk, proportioned in thickness to the size of the tumor, is then to be introduced, and its point to be pushed downwards till it is felt externally, exactly opposite to the most depending part of the swelling. The director being kept firm by an assistant, an incision is to be made with a scalpel upon its under extremity, of a length somewhat more considerable than the opening first made by the lancet: for when this circumstance is not attended to, and when of course the under orifice is made no larger than the upper, the matter is very apt to transude above; which always proves inconvenient to the patient, but which in this manner is very easily avoided. The director is now to be drawn downwards, with so much of the cord as to leave two or three inches of it hanging out at the lower orifice. In order to cause the cotton run easily on its first introduction, as likewise at the subsequent dressings, as much of it as is to be used at the
time

time should be well rubbed over with any emollient ointment.

In twenty-four hours or thereby from its introduction, the cord may be moved, and so much of it should be drawn downwards as to admit of all that part of it being cut off which had been lodged in the abscess; and in this manner the same quantity of it is to be moved daily, as long as from circumstances it may appear to be necessary.

A regular and flow discharge of the matter is thus produced; the sides of the abscess are thereby allowed to contract gradually; and a slight inflammation being kept upon their surfaces by the friction of the cord, they are from that circumstance brought to unite and to adhere firmly to one another, much sooner than they otherwise would do. As the discharge diminishes in quantity, so the size of the seton should also be gradually lessened; and it is easily done, by withdrawing a thread of the cotton once in two or three days. At last, when there is little more matter afforded

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than

than ought to be naturally produced by the irritation of the cord, it may be altogether taken out ; and gentle pressure being continued upon the parts by a roller for a few days longer, a pretty certain and lasting cure may generally be expected.

In the introduction of the seton it was expressly said, that it ought to be made from above downwards ; that is, by an opening made in the superior part of the abscess. The reason for such a restriction is this, that when the first opening is made in the depending part of a swelling, a considerable quantity of matter immediately runs out, which, as it causes the sides of the upper part of it to collapse, renders it more difficult to introduce the director through the whole course of the abscess, than when done in the manner directed : when properly executed, the bottom as well as every other part of the tumor is kept distended to the last, very little of the matter escaping by the upper orifice. By being introduced in this way, too, the quantity of cord that still remains to be
used

used is kept clean and dry ; which it cannot possibly be when inserted in the contrary manner.

To some these circumstances may perhaps appear too trifling to deserve such particular notice ; but too much, it is imagined, can never be said in rendering the account of a beneficial practice clear and evident.

All that has hitherto been said with respect to the use of setons in cases of abscesses from recent inflammation, applies with equal propriety, it must be understood, to tumors of very long continuance, when the matter contained in them is either of a purulent nature, or of a consistence not much thicker than pus. All encysted tumors of the thinner melicerous kind are as successfully treated in this manner as recent abscesses : so that the practice is by no means confined to one set of tumors only ; and it may even probably be employed in others, for which it has not as yet been advised.

It answers particularly well in all collections

tions of matter in glandular parts, where the admission of air is attended with even worse consequences than in other parts. Thus, when it is thought advisable to open scrophulous soft swellings, they commonly heal much sooner and easier with the seton than by a large incision. Venereal buboes, too, when fully matured, and when the teguments are not become very thin by being long overstretched, heal much more readily and kindly by this management than with any other.

From the practice answering so remarkably well in every case of abscess, it was at last, a good many years ago, employed by Mr Rae in the Infirmary here, in the hydrocele, or collection of water in the *tunica vaginalis testis* ; and it has since that time been frequently used in similar cases. I must acknowledge, however, that from the several instances I have yet seen of its effects in this disorder, I am not altogether certain whether it ought to be preferred to the simple incision or not. For, though I never knew an instance, when the operation

ration was properly done, of its failing to produce a radical cure; yet the friction of the cord upon the body of the testis, to which in this operation it is immediately applied, generally occasions a very high degree of inflammation; fully more, I have often thought, than is commonly observed from the simple incision: Farther experience, however, is necessary, in order to determine a question of such importance.

This was my opinion in the year 1778, when the first edition of this book was published. Since that period I have had no other reason to alter it, than to be more and more convinced that the treatment of hydrocele by seton, is productive of more pain than any other method of cure now in use; while, at the same time, it is not more certain in its effects than the simple incision. And, accordingly, although I could not at that time speak with precision of the merits of this operation, I am now satisfied that the cure by incision ought in every instance to be preferred.

But when, in such cases, it is resolved

to employ the seton, the method of introducing it, as we have directed for abscesses, with a curved director of a proper size, seems more simple, though in other respects perhaps not better, than that lately recommended by Mr Pott, which being with the help of a common trocar, appears to be neither safe nor easily performed. For instances have occurred, even with very able surgeons now living, where, in cases of hydrocele, the body of the testis has been wounded by puncturing with that instrument; which, from its round form, is introduced with much difficulty. Whenever it is agreed upon, however, to make use of a trocar, either with a view to a palliative or a radical cure, one with a lancet-point, as is represented in the plate, answers the purpose with much more ease than that in common use. A large instrument of this kind was made, by my direction, some years ago, for the paracentesis of the abdomen; and, as it answered the purpose exceedingly well, it has since been

been often used, and is now very generally employed *.

SECTION IV.

Of MORTIFICATION.

§ 1. *General Remarks on Gangrene,*

THE termination of inflammation, both by Resolution and Suppuration, having now been fully treated of, we come next in order to the consideration of Gangrene or Mortification.

The several appearances of Gangrene having been already particularly enumerated, it is not now necessary to make a full recapitulation of them. Only, it may be remarked,

* Mr Thomas Hay, surgeon in this place, some years ago invented a curved director, such as is here recommended, which has since that time been used for the introduction of a cord in cases of hydrocele, and is found to answer the purpose very conveniently.

marked, that a thorough mortification, or the last stage of gangrene, is known only by the diseased part becoming totally black, by its losing all pain and sensation, at the same time that it emits a considerable fœtor; at last, too, a softness or flaccidity in general takes place, together with an entire dissolution of the different parts of which the organ is composed.

I have said only in general: for although the several appearances, as above related, do most frequently occur; yet there are some instances of what is called Dry Gangrene, in which the parts continue totally mortified for a great length of time, without either turning very flaccid, or running into dissolution.

Such cases, however, never occur from inflammation. They happen commonly from the flow of blood to such parts being put a stop to by compression of one kind or another, as tumors, ligatures, or other similar causes, obstructing the principal arteries that used to supply them; which, when the stoppage of the circulation is complete,

complete, always occasion a very slow mortification; and as the parts, in such instances, are no longer supplied with fresh quantities of fluids, while a considerable evaporation must still be going on, such a degree of humidity cannot therefore possibly occur, as in other cases of gangrene. Thus, that species of the disorder has, perhaps with propriety enough, been termed the Dry Gangrene.

There are other varieties of the disease enumerated by authors, as the White Gangrene*; in which the parts supposed to be mortified do not turn black, but retain nearly their former colour, &c. Whether such complaints, however, can with propriety be denominated Gangrene or not, may probably be doubted: but as it is chiefly that species of the disorder which succeeds to inflammation, that is now particularly to be treated of, and in which no such varieties are ever observed, it is not here necessary to carry the inquiry farther; and especially as nearly the whole
mode

* *Quesnay, Traité de la Gangrene, p. 337.*

mode of treatment, to be afterwards recommended, applies, with almost equal propriety, to every variety of the disease.

Of all the inflammatory complaints to which the system is liable, that species of the disorder termed Erysipelas, is observed most frequently to terminate in gangrene; and whenever phlegmon is in any degree conjoined with an erysipelatous affection, which it not unfrequently is, it seems thereby to acquire the same tendency, by being, as was already remarked, more difficult to bring to suppuration than the true phlegmon, and by going on more frequently to the mortified state.

THE best and most effectual means of preventing mortification in every case of inflammation, is to endeavour either to obtain its resolution or suppuration; the different remedies for both which purposes have already been fully pointed out. But, in some cases, the disorder is far advanced, and gangrene is already begun, before the surgeon's assistance is called in; and, in others,

others; the inflammation runs so high, and proceeds so quickly; that gangrene occurs notwithstanding the use of all the remedies that can be applied: In some instances so quickly even, that the inflammatory state is scarcely thoroughly discerned till mortification appears to be beginning.

§ 2. *Observations on Carbuncles as a Species of Gangrene.*

THIS rapid progress of the disorder occurs most frequently in cases of Carbuncles, what by the French are termed Charbons; in which the inflammation proceeds so quickly to mortification, that there is seldom any evident tumor raised, the parts turning black, and ending in real gangrene, often in the course of twenty-four hours from the first attack.

The quick progress usually made by this disorder, renders it the worst and perhaps the most dangerous species of inflammation. For when it occurs internally upon any of the viscera, as it sometimes does, it must, probably in every instance, prove fatal, as no remedies with which we are
acquainted

acquainted can ever prevent its progress towards the last stage of mortification: Externally, indeed, when they are not very extensive, and not seated on any of the large blood-vessels and nerves, carbuncles are frequently got the better of; that is, with the loss of the affected parts.

As carbuncles commonly appear without any evident external cause, they are in general most probably owing to a scorbutic or putrid state of the fluids; for, when putrescency prevails in the system, every inflammatory affection that occurs, proceeds much more readily to the mortified state than inflammation in other circumstances ever does.

This opinion with respect to the cause of carbuncles depending upon a putrescent state of the system, is particularly confirmed by their occurring most frequently as a symptom in pestilential disorders; for, although they are sometimes met with even in this country, where the plague is now never known, yet the real carbuncle

buncle is far from being a common occurrence.

In such instances gangrene is very easily accounted for, from the predisposition in the system to putrid disorders: but in what manner is it produced by inflammation in other cases, and where no such disposition can be supposed to take place? This we shall proceed to investigate.

§ 3. *Of the Causes of Gangrene.*

AN increased action in the vessels of a part, we have already endeavoured to establish as the immediate or proximate cause of inflammation; and the same cause, it is presumed, will, in many instances, account for the rise of mortification.

One evident effect of an increased action in the vessels, in every case of inflammation, is a propulsion, into the smaller capillaries, of a greater quantity of the more dense parts of the blood than naturally they were intended to transmit. When this is not considerable, a due circulation is frequently restored in a short time, with-

out any bad consequence whatever ; nay, when an actual extravasation of the serous part of the blood into the cellular membrane has taken place in some degree, the fluid is often reabsorbed, and a cure is thus obtained by resolution. But when such extravasation from a farther increase of this undue action of the vessels has taken place to a still greater degree, suppuration is then most frequently the consequence.

When, again, a strong exciting cause is applied to a constitution already predisposed to inflammatory complaints ; as a lacerated wound, for instance, in a young healthy man ; the violent irritation, and consequent increased action of the vessels that ensues, occasions the red particles of the blood to be likewise poured forth together with the serum. In this manner a collection of an extravasated fluid is produced, and the great degree of preternatural heat kept up by the disorder very readily excites in it some degree of fermentation ; which, from the nature of the matter it has to act upon, not being able to effect

fect a suppuration *, and the crassamentum of blood being particularly liable to run into the putrid fermentation †, mortification, which we may here consider as the ultimate stage of putrefaction, comes in course to be produced.

The disorder being, in this manner, once raised in a part, the progress which it afterwards usually makes, does not appear very difficult to account for. The putrescent particles of the tumor, by insinuating themselves into the cellular membrane of the neighbouring sound parts, as in this manner they extend the contagion, so they very soon bring these likewise to suffer. In this way, the mortification continues to advance; till meeting with a part,

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perhaps,

* Mr Gaber, when speaking of his experiments upon the crassamentum of blood, says, that he could never obtain genuine pus from it; and farther adds, “Vero similis ergo sanguinem cæteris puris principiis admixtum, ipsum magis *fatidum* et deterius reddere, &c.” *Loco citato*, p. 87.

† For some animal-substances, such as urine, the bile, and the crassamentum of blood, *soon* putrefy. Sir John Pringle's Experiments, Appendix, p. vi.

perhaps, naturally more irritable than the others, or which by this time has been rendered so by the different remedies to be pointed out, a certain degree of new inflammation comes to be easily induced, in consequence of the stimulus which putrid particles must always occasion: This, as it renders the parts more firm and compact, makes them less easily penetrable by the putrescent contagion; and a suppuration of course ensuing as a consequence of the preceding inflammation, a complete separation of the diseased from the sound parts is thereby, in general, very soon effected.

At least, that such an inflammation, with a consequent suppuration, does, in cases of real gangrene, always happen before a separation of the diseased parts takes place, is a fact well known to every practitioner; and that the cause assigned for these appearances is the true one, I think, from the different circumstances taken notice of, is at least exceedingly probable.

Thus the local symptoms of gangrene appear

appear to be pretty certainly accounted for: and the sinking of the pulse, which, in extensive mortifications, always occurs, and which is by much the most remarkable change that takes place in the general system, is a very natural consequence of that debility, which seems to be a constant and necessary attendant on a putrescent state of the fluids, from whatever cause this may have arisen; a circumstance we have particularly demonstrated in putrid fever, and in scurvy, where a languid pulse and general debility are always considered as the most characteristic symptoms.

§ 4. *Of the Prognosis in Gangrene.*

IN every case of gangrene, the prognosis should at first be exceedingly doubtful; for even in the slightest affections of this nature, the system, from the contagion it receives by the absorption of putrid matter, is, in some instances, so much affected, that the patients are suddenly car-

ried off, without appearing previously to have been in any imminent danger.

In such cases, however, as succeed to inflammation from an external cause, where the gangrene is neither very deep nor extensive, and where it does not seem to spread, the prognostic ought to be much more favourable than in those which arise suddenly from an internal cause, where the mortification runs deep, and more especially when it is still continuing to advance; in which circumstance the greatest danger is always to be apprehended.

Indeed, no person whatever, with any considerable mortification, even from an external cause, can be said to be free from risk, till the diseased parts are not only separated, but even entirely cast off from the sound; the poison of putrid miasmata being of such a penetrating and destructive nature, that many instances have occurred of patients being very quickly carried off, seemingly from this circumstance alone, long after the progress of the mortification

tification had ceased. In such cases we presume, that the putrescent miasmata prove destructive, chiefly by their deleterious influence on the nervous system. In long continued cases of mortification, the general mass of fluids may sometimes suffer merely from the absorption of putrid effluvia ; but as patients, labouring under mortification, frequently die suddenly, and before any putrescency has appeared in the system at large, we conclude that this most probably happens from some effect produced either upon the nerves or on the sensorium from whence they originate. But in whatever manner the putrid fomes of a mortified spot may operate, their influence is frequently found to be so pernicious as to warrant the conclusion we have formed ; namely, that no person, labouring under a real mortification, can be said to be free from danger till all the diseased parts are entirely removed.

§ 5. *Of the necessary Remedies in Gangrene.*

IN the treatment of Gangrene, when no blood-letting or other evacuation has been prescribed during the preceding inflammatory state of the disorder; and when the general symptoms of inflammation, particularly a quick, full, or hard pulse, still continue violent; and especially when the patient is young and plethoric; it then becomes absolutely necessary, even altho' mortification may have commenced, to empty the vessels a little by one general blood-letting. Which, by moderating the fever, and abating the universal heat, proves often a sure means of preventing the progress of the disorder: and, in this view, blood-letting, in such cases, may, in reality, be considered as an antiseptic; and it does often, indeed, in this particular situation of mortification, prove more powerfully so than all the different articles in general enumerated as such.

For the same reasons that blood-letting is recommended, gentle laxatives, and a
free

free use of acidulated cooling drink, become necessary. But, as in the farther progress and continuance of mortification, the patient is very apt to sink, and the pulse to turn languid, every evacuation, especially of blood, should be directed with much caution, never to a greater degree than may seem to be absolutely necessary for *moderating such symptoms* as at the time appear to be too violent.

When, again, as is most frequently the case when the disorder has made any considerable progress, the patient is much reduced, either by severe evacuations, or merely by the effects of the complaint; when the pulse is low, and the other symptoms of fever not considerable; in these circumstances a very contrary treatment becomes necessary: the principal indication now being to prevent the system from sinking too much, by a proper use of cordials, and especially by those of the tonic kind; while, by the same means, we enable it to free itself from, or to cast off, the mortified parts. For, as we have already
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observed, the separation of gangrenous from healthy sound parts, being always effected by the intervention of inflammation, it should be our chief care to assist nature as much as possible, in exciting in the system, by every proper means, that disposition which, from experience, we know to be most favourable for the production of inflammation; which, when speaking of the general predisposing causes of inflammatory complaints, we have endeavoured to show, is a full plethoric state of the vessels, which at the same time is generally conjoined with a more invigorated tone of the vessels themselves.

It may, perhaps, be imagined, that this indication proves, in some measure, contradictory to what we lately advised with respect to the propriety of blood-letting in some cases of gangrene. When properly considered, however, it will by no means appear to be so. For we well know, that, in every disorder to which the system is liable, an over-dose of the most effectual remedy will often prove just as detrimental

as a medicine of the most opposite tendency: and, in the same manner, though a certain degree of inflammation is, perhaps, absolutely necessary for the cure of every gangrene; yet, in a very high degree, it becomes always exceedingly hurtful.

With a view to fulfil the intention of this indication, a good nourishing diet becomes necessary, with such a proportion of generous wine as the patient's strength and symptoms of the disorder may seem to require.

By a due attention to this circumstance of regimen, particularly by a proper allowance of wine, much more real advantage is commonly obtained than ever occurs from the use of the whole tribe of stimulating warm cordials. When, however, the patient is much reduced, and very languid, some of these, such as the volatile alkali, and *confectio cardiaca*, may, at the same time, and in such quantities, be prescribed, as the patient's immediate situation appears to render necessary.

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But of all the medicines hitherto used in mortification, none proves so certainly efficacious as the Cortex Peruvianus, which has often a very evident and powerful influence in putting a stop to the disorder. As it is a very powerful tonic remedy, it may probably act by invigorating the general system; and thus, by rendering it more susceptible of that inflammatory tendency, which we have shown to be so necessary for effecting a separation of mortified parts, it may in this manner enable it to free itself from them. It may likewise, perhaps, in some instances, act as an antiseptic, merely by correcting putrefaction; though, in the former mode of operating, its effects, we apprehend, are generally much more considerable than in the latter.

In whatever manner the bark operates, however, it can in no case of mortification be ever, with propriety, omitted, excepting in the first stage of the disorder, while several of the inflammatory symptoms yet remain violent; but, as soon as these are
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tolerably abated, it may always, both with safety and advantage, be employed.

The best rule with respect to the quantity of the medicine to be exhibited, is to give it always in as large doses, and these to be as frequently repeated, as the stomach can easily bear. It is a great inconvenience, however, which is found to attend almost every case of gangrene, that the stomach can seldom bear a sufficient quantity of the bark in substance, which is always, we may remark, the best mode of using it; but particularly in this disorder, when none of the finer preparations of the medicine are ever so much to be depended on.

Of all the different forms employed for exhibiting bark, I have generally found it fit easiest on the stomach when conjoined with some of the spirituous waters; and to the use of which, in such cases of gangrene as bark itself is proper in, there can never be any objection. The following formula is far from being disagreeable,
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and I have known it answer with patients whose stomachs rejected every other.

R. Aq. alexiter. simp.

cinnamon. fort. aa unc. iii.

aromatic. unc. ii.

Pulv. cort. Peruv. subtil. unc. fs. misce ;
coch. ii. omni semihora sumendis, agi-
tata phiala.

In this manner a drachm of the bark comes to be taken every hour, which, in general, in less than twenty-four hours, has a considerable influence in producing a change on the disorder. A great deal depends upon the medicine being in a fine powder, as patients often bear considerable quantities of it in that state, when they reject even very small doses of a coarse powder.

As a species of bark has lately been much employed, of a more deep red colour than the kind in ordinary use, I think it right to mention the result of my own experience of it. I cannot pretend to form any judgment of the effects of this remedy in the cure of intermittents, as, in Edinburgh

burgh and its environs, agues are very rarely met with. But, so far as I have yet seen, its influence, in cases of gangrene, and in correcting the thin fetid discharge of putrid ulcers, is far inferior to that of the best ordinary bark of a brown or cinnamon colour. One very remarkable instance of this it may not be improper to mention: A gentleman, for several years, had laboured under a sinuous ulcer, the discharge of which, once in two or three months, always became thin, putrid, and very acrid. The influence of common bark, in correcting this, was so remarkable, that a few doses of it commonly had a considerable effect in rendering the matter thick and much less offensive. From the taste, and other sensible qualities of the red bark, being stronger than those of the ordinary kind, I was at first inclined to think favourably of it; and among others I prescribed it to this patient. But although he continued for several days to take it in the same doses he had always used of the other, he did not experience any advantage from
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it ; while, on the other hand, on the common bark being again employed, the matter from being thin and fetid, was quickly converted into pus of a proper consistence.

One trial, however, is by no means sufficient for enabling us to form a just opinion of any medicine : And accordingly I was resolved to put it to the same test in future occurrences of a similar nature. It has now been three times tried in the same manner, and the result has been always the same. The red bark has never produced any change on the nature of the discharge, while the influence of the other has been uniformly the same. Indeed, our patient is now so much convinced of the inefficacy of the former, that it is with reluctance he is induced to take it ; although, at first, his expectations from it were raised very high, not only from the opinion I had endeavoured to give of it, but from the high panegyrics bestowed on it by others.

This is the most remarkable case I have met with for comparing the effects of the
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different kinds of bark : but I have likewise seen the red bark fail in other cases, where the common kind of it proved evidently useful ; so that, although I cannot with certainty say that the red bark will never prove useful in cases of mortification, and in such ulcers as we have described, yet from the result of all the experience I have yet had of it, I am inclined to consider it as of a very inferior nature to the other. Farther observation, however, is necessary to determine a matter of such importance.

Together with bark, the vitriolic acid is frequently employed with advantage ; and the best form of using it is, by acidulating all the patient's drink with elixir of vitriol.

These are almost the only internal remedies to be depended on in cases of gangrene. Many others, indeed, have been recommended ; but all the advantages to be obtained from any of them, may be procured with more certainty from some or all of those we have already enumerated.

In the way of external application, we find a variety of remedies pointed out by

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authors,

authors, and particularly those of the antiseptic kind ; such as all the warm gums and balsams, ardent spirits, and even alcohol : and to admit of their nearer application to the sound parts with a view to the preservation of these from putrefaction, deep scarifications through the diseased and into the sound parts have been generally recommended.

But although such articles may be of use in preserving *dead* animal-substances from corruption ; yet that they will always prove serviceable, in the same manner, in living bodies, is probably very much to be doubted. And it is even apprehended, by the strong irritation they always occasion when applied to a living fibre, that, in such cases as the present, they may rather do mischief ; it being only, as we already observed, a very slight degree of inflammation that is required. The incisions too, when carried into the sound parts, with a view to facilitate the operation of such remedies, may likewise do harm ; not only from the risk of wounding the blood-vessels,

sels, nerves, and tendons, that lie in the way; but also, by allowing a free and farther entrance of the putrescent fluids into the parts not yet affected; And unless they are carried so deep as freely to reach the sound parts, applications of the antiseptic kind can never have any effect in answering the purpose for which they are intended. For these reasons, and from never having observed any advantages to accrue from scarifications, I have long thought that they might be entirely laid aside*.

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Theriac

* Although I was convinced from experience of what is here advanced against the use of scarifications, as well as of the impropriety and inefficacy of very warm stimulating applications in cases of mortification; it was not without diffidence that I first ventured to assert it, the opinion at that time being, in this place at least, in a great measure new. I am now happy to find, however, in a late publication, the same practice recommended from the best authority. *Vide* Chirurgical Observations by Percival Pott, F. R. S. &c.

In the same publication is given a particular description of a species of mortification incident to the toes and feet, in which Peruvian bark has little or no influence, and in which opium, given in large doses, frequently repeated, proves a very effectual remedy.

Theriac was, in former times, and still is with some practitioners, a very common application in every case of gangrene; but from any opportunities I have had of seeing it used, I cannot say that it ever seemed to produce any evident good effects.

All the advantages commonly derived from the great variety of applications recommended for gangrene, are obtained with more ease, and generally too with more certainty, from the use of any gently stimulating embrocation; which, by exciting a slight irritation upon the surface, and especially when assisted by a free use of the bark, as was already directed, at last commonly produces such a degree of inflammation as is wished for. With this view, I have frequently known a weak solution of sal ammoniac in vinegar and water answer exceedingly well; a drachm of the salt to two ounces of vinegar and fix of water, form a mixture of a very proper strength for every purpose of this kind; but the degree of stimulus can be easily either increased or diminished according to circumstances.

cumstances, by using a larger or smaller proportion of the salt.

Although, for the reasons we have already advanced, incisions may not, in general, be proper; yet, whenever the mortification runs very deep, it is of service to make scarifications into the diseased parts, so as to remove a portion of them, which, by taking off a considerable load, perhaps, of putrid dead matter, not only lessens the fetor, which in such cases is always considerable; but often renders it more easy for the sound parts to free themselves from the remainder: When with this view, however, incisions are employed, care should always be taken that they be not carried the length of the sound parts.

Whenever, either by the means we have recommended, or by the effects of a natural exertion of the system, a slight inflammation begins to arise between the diseased and sound parts, we may in general, with tolerable certainty, expect, that, in due time, a thorough separation will take place; and, when a full suppuration has

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fairly

fairly commenced, there then can be little doubt but that the mortified parts will be very soon and easily removed.

A separation being completely effected, the remaining sore, which is then to be considered merely as a simple purulent ulcer, may be treated in the same manner as such sores generally are, with very slight easy dressings; at the same time that proper attention must always be paid to support the strength of the system, by the continuance of a nourishing diet, the bark, and such quantities of wine as may seem to be necessary.

Although such ulcers, however, as remain after gangrenous affections that have not been very extensive, may, in general, be healed in the manner now mentioned; yet, in mortifications seated on the extremities, and which have penetrated to the bones, it sometimes happens that the whole surrounding soft parts come to be destroyed, so that amputation of the member is thereby rendered necessary. But we should never have recourse to amputation till a full
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and thorough separation of the mortified parts has taken place : so that it ought, in every case of gangrene, to be held as an established maxim, never to amputate a member till a full stop has been put to the disease, or even till a complete separation of the mortification from the sound parts has been produced. For although the parts immediately contiguous to those *evidently* diseased, may outwardly appear to be sound, yet there can never be any certainty of those, even directly below, remaining so till a separation occurs ; so till this has evidently taken place, we can never have any security for the disorder not returning, and perhaps immediately too, upon the remaining stump.

It must be observed, however, that as soon as an entire separation of the gangrene has occurred, no time should be unnecessarily lost in putting the operation in practice ; for, as long as any of the corrupted parts remain in contact with the sound, the system must still be suffering considerably,

ably, by the constant absorption of putrefcent particles, that so long will undoubtedly take place.

CHI.

CHIRURGICAL ESSAYS.

PART II.

On the Theory and Treatment of ULCERS.

SECTION I.

Observations on Ulcers in general.

BY different authors very different definitions have been given of the term Ulcer: But what in general seems to be understood by it is, A solution of continuity in any of the softer parts of the body, discharging

discharging either pus, fanies, or any other vitiated matter; and this, whether the complaint may have originally proceeded from an internal or an external cause.

Many writers, indeed, have confined the term to such sores as are the consequence of some internal disorder of the system. But in this they have certainly erred: for even the most simple wound, not in the least connected with any other disease, if it does not heal by what is called the first intention, without the formation of matter, must, in its progress towards a cure, always end in an ulcer.

Although, in compliance with custom, we have, in the definition, confined the seat of ulcers to the soft parts only; yet that ulcers of the bones do likewise occur, is certain. Thus every species of caries attended with loss of substance, may, with propriety, be termed an ulcer; and it is so in reality, both in its appearances and effects.

But, in order to prevent such confusion as commonly occurs from the introduction
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of more distinctions than are absolutely necessary, I mean to consider caries as an accidental symptom of ulcers, and to speak of it under the general denomination of Carious Ulcer.

Ulcers have been commonly distinguished by different appellations, according to some particular circumstance attending them ; and different methods of cure have accordingly been pointed out for each. And if these had been taken from characteristics sufficiently distinct, and of any real consequence either in the theory or treatment of the different disorders, they would certainly have been material, and ought to be retained. But as it is evident, that many of them have been formed from circumstances either not very obvious, or from such as are merely accidental, and that do not, therefore, afford any real distinction, to adhere to these could never be productive of any advantage ; and might even, it is presumed, frequently do mischief, by leading to a more complicated practice, when a much more simple treatment

ment would probably answer the purpose.

The different circumstances from which ulcers have received their denominations, are,

1. From the general appearances of the solids in the parts diseased : as the Callous, Fungous, Fistulous, &c.

2. From the nature of the matter discharged : as the Ichorous, Sordid, and Purulent ; from their discharging a thin ichor, a more viscid glutinous kind of matter termed *fordes*, and purulent matter.

3. From their duration ; as the Recent, and Habitual.

4. From the attendant symptoms being mild or violent, they are denominated Benign or Malignant. And,

5. They have been termed Venereal, Scorbatic, or Scrophulous, according as they have been supposed to be connected with the Lues Venerea, the Scurvy, or Scrophula.

Though it may be proper for practitioners
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to be acquainted with these and other terms that have been used, in order more accurately to understand the meaning of authors, and to explain to one another the appearances of diseases; yet it is exceedingly obvious, that many of the distinctions we meet with in books, have been taken from circumstances quite too trivial to have any real influence on the disorders, and which consequently can have no other effect than to embarrass and perplex all such as enter upon the study of this branch of practice.

§ 1. *Of the Arrangement of Ulcers.*

THE following arrangement of ulcers, at the same time that it appears to be exceedingly simple and natural, comprehends every species of the complaint that can occur; and, if duly attended to, will, we hope, render the method of treating them more effectual, and at the same time more certain than in general it is found to be.

Ulcers, then, may be divided into two
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general classes. In the first we mean to comprehend all such as are merely local, and that do not depend upon any disorder of the system.

In the second class all such ulcers are included as are the consequence of, or that are connected with, any disorder of the constitution.

The importance of such a classification appears evident from the very great difference in the treatment, which undoubtedly should take place, between ulcers that are only topical affections, and such as are connected with any disorder of the system. It is frequently, indeed, from want of due attention to a distinction of this nature, that the treatment of ulcers is rendered so tedious and uncertain as it very often is. For, by forming a diagnosis too hastily, and by treating an ulcer that is merely a topical affection, with remedies directed to some disorder of the general system, many are forced to undergo very unnecessary courses of medicine, and may thereby have their constitutions irreparably hurt.

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A contrary error, again, not unfrequently happens, which is sometimes attended with very disagreeable consequences, namely, the treating, as simple local affections, those ulcers which are certainly owing to some general disorder of the habit ; and which it is, therefore, in vain to expect to cure by topical remedies only, unless the disease of the constitution be at the same time attended to. Sometimes, too, an ulcer is treated as a disorder of the constitution ; but, by mistaking the nature of the complaint, which of course must occasion a misapplication of remedies, the cure of the sore is thereby not only greatly retarded, but the system in other respects is often brought to suffer very materially.

Thus, an ulcer connected with a scorbutic habit of body, is not unfrequently mistaken for, and treated as, a leprous, or perhaps a venereal affection ; a circumstance which must undoubtedly lead to a kind of practice that will frequently be attended with disagreeable consequences.

The only cause that can occur, to occasion

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sion such mistakes in practice, is the want of a proper set of diagnostic symptoms for the several species of ulcers. This, in the ensuing sections, we have in some measure endeavoured to remedy, by enumerating, as clearly and concisely as possible, the different characteristic symptoms of each: the several varieties we have mentioned contain every distinction of importance; but as they are not near so numerous as those commonly enumerated by authors, the means of distinction we have proposed will probably characterise them with more precision than ulcers in general have hitherto been.

- But before going on to the particular consideration of the different species of the disorder, it will not be improper, in the first place, to make a few observations upon ulcers in general; and first with respect to their causes.

§ 2. *Of the Causes of Ulcers in general.*

THE causes which, in different circumstances,

stances, may give occasion to ulcers, are exceedingly various ; but in general they are found, on examination, to arise from one or other of the following nature.

1. From such as may be termed Occasional or Exciting Causes : Of which kinds are, wounds in general—bruises ending in suppuration — burns — and inflammation, from whatever cause it may have arisen, when it terminates either in gangrene or suppuration.

2. From such as with propriety may be termed Predisposing Causes ; of which kind are considered, all disorders of the system in general, attended with determinations to, or affections of, particular parts : such as fevers of all kinds that terminate in what are called Critical Abscesses—also lues venerea—scrophula—and scurvy.

3. Ulcers may proceed from a combination of the two foregoing causes. Thus a slight scratch, or excoriation, that in a sound constitution would heal without any trouble, in a habit tainted with any

of the above-mentioned disorders will frequently produce a very disagreeable and tedious ulcer.

§ 3. *Of the Prognosis of Ulcers in general.*

THE causes of ulcers being so very various both in their nature and effects, the prognosis to be given in all such complaints must, it is evident, be no less so.

1. It must depend upon the nature of the different exciting causes that may have given rise to the disorder.

2. Upon the situation of the sores; and,

3. On the time of life and habit of body of the patient at the time.

With respect to the first of these, it is evident, that the occasional cause must have a very considerable influence on the nature of the complaint. Thus an ulcer proceeding from a simple wound, inflicted with a clean cutting instrument, will, *cæteris paribus*, always heal more easily, than one that has been the consequence, either of a severe bruise, or of a wound from a foul ragged instrument.

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It is likewise found, that punctured wounds are much more difficult of cure, than such as have large free openings; and this again may be owing to two different reasons.

1. To the want of a free exit to the matter; which, in punctured wounds, is very apt to insinuate itself between the common teguments and muscles, and even between the interstices of the different muscles themselves: a circumstance that frequently lays the foundation of very troublesome sinuses.

2. Pain and inflammation are always much more troublesome in wounds occasioned by punctures, than in those where the parts have been freely and extensively divided. For it is found by experience, that the irritation occasioned by the partial division, either of a nerve or of a tendon, proves always much more considerable than when the parts have been thoroughly cut in two: And hence has arisen the practice of enlarging all such wounds; which often carries off the pain and in-

inflammatory symptoms more effectually, than all the applications and remedies that in such cases are generally recommended.

Secondly, The cure of ulcers, it was observed, is considerably influenced by their situation; and this, we may remark, is the case in two different respects.

1. With respect to the nature and organization of the parts on which they are seated; and,

2. As to their situation on the trunk of the body, or on the upper or lower extremities.

Thus it was long ago remarked, and it has since been confirmed by experience, that ulcers in the soft fleshy parts heal much more easily, than when the tendons, aponeuroses of muscles, glands, periosteum, or bones, are affected.

The pain occasioned by sores in the soft muscular parts is not so considerable, the discharge is generally better-conditioned, and the cure commonly advances more quickly, than when any of the other parts are the seats of the disorder: And, on the other

other hand, whether ulcers are seated in the cellular membrane, in the tendons, periosteum, or bones, their cure is always observed to go on much more easily when seated in the trunk of the body, than on any of the extremities; and of these, again, the legs and feet are found by every practitioner to be the most troublesome situation for sores of every kind.

The depending situation of the latter seems to be the principal cause of such a difference: for the fluids having, in them, to proceed in a direction quite contrary to their own gravity; and this too at such a considerable distance from the heart, where the influence of that organ cannot be material; whenever any of the parts happen to lose their tone, or by any accident suffer in their arrangement, swellings, especially those of the serous kinds, very naturally occur. And, when such swellings do arise in the neighbourhood of ulcers, by occasioning too great an afflux of matter to the sores, the discharge at last becomes vitiated in its quality likewise; and thus the cure

is protracted, till the parts, by rest and proper management, have again recovered their natural tone.

It is from this circumstance chiefly, that a material part of the cure in ulcers of the legs is found to be obtained from rest, and in keeping the limb in an horizontal posture. One great advantage too of the laced stocking, in such cases, consists in its tendency to prevent these kinds of swellings : This will hereafter, however, be more particularly taken notice of.

The situation of ulcers, with respect to the neighbourhood of large blood-vessels and nerves, from the danger of these at last becoming affected, must, likewise, have a considerable influence on the prognosis ; as ought also their being seated upon, or very near to, any of the large joints ; or there being any risk, from their situation, of the matter penetrating into either of the cavities of the chest or abdomen.

It was, in the *third* place, observed, that the prognosis, in every case of ulcer, should be

be much influenced by the age and habit of the patient.

Thus, in young healthy people, all the secretions are, commonly better proportioned, both in quantity and quality, than in the old and unhealthy, in whom the secreting organs are seldom capable of performing rightly their different functions: And, as the different discharges from ulcers are to be considered almost entirely as secretions from the general mass of fluids, their being of a good or of a bad quality, must of course depend so much on a healthy state of the solids, that it cannot appear surprising, their being so much influenced by the general health of the patient.

The cure of ulcers depending, therefore, upon such a number of circumstances, a just prognosis, it is evident, can only be obtained from a due attention to all their varieties.

§ 4. *The Cure of every Ulcer may, with certain Cautions, be safely attempted.*

WITH respect to the *treatment* of ulcers, the first circumstance to be determined, is the propriety of attempting a cure or not. That it is proper to endeavour to heal every recent sore, is universally allowed; but when ulcers have been of long continuance, or when they appear to have had any effect either in carrying off or in preventing any disorder to which the constitution may have formerly been liable, it has always been considered as dangerous to attempt their cure: And, accordingly, almost every author who has written upon the subject, has expressly determined against it, as being a hazardous, and even a dangerous practice.

Such ulcers as have afforded a copious discharge, and have been of very long standing, it would no doubt be exceedingly imprudent all at once to heal up, as the system might very probably suffer from
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the sudden retention of a considerable quantity of fluids, which it had been accustomed for a long while to throw off by means of such drains. Many cases, indeed, have ended fatally upon such ulcers drying up suddenly, either of their own accord, or by the imprudent use of astringent applications.

On the other hand, however, the trouble arising from a foul extensive sore, disagreeably situated, and which is probably to continue for life, is an inconvenience which none but very old or inactive people can be supposed willingly to submit to: and, therefore, the discovery of such a course as can render it safe for patients to attempt the removal of such disorders, becomes at once a most important object.

With a small degree of caution, the cure of every ulcer, we think, may be attempted; the only requisite precaution, before entering upon the means necessary for this purpose in habitual sores, being the introduction of some other drain, by means of a pea-issue or of a cord: The former of these is managed with the greatest ease; and,

and, by increasing or diminishing the size and number of peas made use of, the quantity of matter may be increased or diminished at pleasure.

§ 5. *Of the Effects of Issues in the Cure of Ulcers.*

AN issue of this kind being introduced, and having come to discharge properly, and in quantity nearly equal to what the ulcer afforded, the cure of the latter may be then carried on with the greatest freedom; and if the sore has not been of very long standing, the size of the issue may be gradually lessened, till it is brought to contain a single pea only, which will produce a constant discharge, with very little trouble.

But when, on the contrary, the ulcer has been of very long continuance, and especially if it seems to have been instrumental in preventing any other formidable complaint; in this case, the issue should undoubtedly be continued of the same size for life: but even this may be done with

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no great inconvenience, at least in comparison with the trouble attending a large ulcer.

This practice might, we think, from reasoning alone, be considered at least as safe. For, if a drain equally copious is first introduced, and is afterwards kept running, the healing of the ulcer for which it was substituted, however old it may have been, cannot, probably, in these circumstances, be productive of any harm to the constitution. And I can say, from much experience in this branch of surgery, that nothing commonly proves more effectual in the cure of old ulcers than issues; and I never knew an instance of their being attended with any material inconvenience.

The objections that have been made to the practice here recommended, are,

1. That an artificial issue, to be continued for life, is almost as troublesome and disagreeable in its management as a natural ulcer. And,

2. That nature having been for a long time accustomed to the discharge of a particular

ticular kind of morbid matter afforded by the ulcer, we ought not therefore, by innovations, to run any risk of diverting her stated and usual operations.

The first of these arguments is very easily, and has already, indeed; been partly answered; for it cannot be readily admitted, that a simple issue, for which we can choose the most convenient situation, will ever prove so troublesome as a large ulcer, and which is probably, too, very inconveniently situated. Of this, indeed, we have evident demonstration, from daily experience; there being few complaints more perplexing to patients than extensive ulcers; especially when the discharge is so thin and acrid as to fret the neighbouring parts, and which is not unfrequently the case.

§ 6. *The Effects of Ulcers on the Constitution depend more on the Quantity than on the Quality of the Matter discharged.*

THE other objection alledged against the practice of healing old ulcers, is, as was already

ready.

ready observed, the supposed danger arising to the constitution, from the retention of a particular kind of morbid matter, which by their means it had been accustomed to throw off.

By the supporters of this objection it is said too, that although the matter of an issue may be equal in quantity to that afforded by an ulcer; yet that its being of a different quality must render the discharge much less salutary.

And it must be acknowledged, that we do almost universally observe the greatest difference between the matter of an issue, and that which is discharged from an ulcer; from the latter it being frequently thin, sharp, and acrid, whereas a mild bland pus is the most common discharge from issues.

The foregoing argument, at first sight, appears very conclusive; and it has probably, with many, been the principal reason for rejecting the practice in question. Upon due consideration, however, it will not, it is presumed, be found to be of much importance; and that it is more owing to
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the quantity discharged by ulcers, than to the quality of the matter, that they prove useful to the constitution or otherwise, will, with very little reflection, be rendered exceedingly evident.

Thus it is observed, that the stoppage of even a pea-issuë, though it may never have discharged any thing farther than the mildest and most simple pus, if it has been of long continuance, proves equally dangerous to the constitution as the stoppage of an ulcer that has discharged nothing but matter of the most acrid kind : a circumstance which could by no means be the case, 'if the common opinion was well founded, namely, that the bad effects of drying up old sores are to be attributed solely to the retention of a noxious matter, which had formerly been discharged by them.

And, that the quantity merely of matter discharged, should, independently of every other circumstance, have a considerable influence on the system, cannot appear in the least surprising, when we reflect

flect on the very considerable proportion of fluids requisite for the supply of an issue, of even a moderate size, with pus. For, independent of the quantity that appears and is discharged at the different dressings, a large exhalation and absorption likewise of the more thin serous parts is constantly and at all times going on ; which circumstance alone accounts for the debilitating effects frequently produced by issues, which in point of size appear very inconsiderable*.

Were we, indeed, certain that such acrid and putrescent matters, as are frequently discharged by ulcers, previously existed in the mass of blood, and that such sores served merely as drains for these ; this would, no doubt, prove a very weighty argument : but as it is probable, and indeed, I may

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say,

* Upon this subject Sir John Pringle remarks: " As
" near as I could guess, an ounce of serum, upon stand-
" ing some days, did not furnish more of this matter,
" viz. Pus, than what might be produced by the daily
" running of a pea-issue, or of a seton." Vid. Exper.
xlv. Appendix to Diseases of the Army.

say, certain, that it is by the ulcer only that such kinds of matter are formed, and that none of them previously existed in the blood, we are induced therefore to consider this argument as of little or no importance.

Very little consideration, indeed, will make it appear, that no such varieties of matter, as are frequently observed to flow from ulcers, ever existed in the blood. No analysis of the blood has ever been able to discover them : Nor can it be conceived, how fluids so acrid, and so different from the blood of a healthy person, can circulate in the delicate and irritable vessels of the human frame, without producing dangerous or even fatal effects. Now it is well known, that the discharge from some kinds of ulcers, especially from those generally termed Phagedenic, is often so acrid, as not only to excoriate the surrounding parts, but even sometimes to render it dangerous for a surgeon to apply the necessary dressings.

The discharge which occurs from the
eyes,

eyes, in some instances of ophthalmia, has been known too to be so acrid as to corrode the neighbouring parts ; and the ferous evacuation produced by blisters, although commonly inoffensive, is sometimes possessed of a great deal of acrimony.

In some cases of scurvy, indeed, a considerable degree of putrescency, even of the blood itself, does, no doubt, frequently take place : but it is not in such ulcers as occur in this disease, that such very acrid corrosive humours, as we are now describing, are ever observed ; the phagedenic ulcer of authors, being a very different disorder from the true putrid ulcer, as described by Lind and other writers on scurvy.

Besides, though it were really proved that these kinds of matter actually did exist in the blood, even in a completely formed state, how is it possible, that by means of such ulcers, or any other drains, the morbid fluids chiefly should be evacuated, and such only left behind as are mild and innoxious ? A circumstance which, how-

ever improbable it may appear, has always been asserted by the supporters of the opinion in question.

The obvious insufficiency of this theory should induce us to reject it, though we could not propose a more satisfactory opinion in its place. But, as the various appearances and alterations which take place in the discharge of ulcers, seem evidently to depend in a great measure on some peculiarity of the solids or secretory organs connected with them, we are therefore more easily induced to conclude, that other suppositions do not merit our attention.

The general seat of ulcers is in the cellular membrane. Now it is well known, that naturally there is secreted into the cells of this membrane, as there is into every cavity of the body, a thin transparent serum, the principal intention of which is to keep these moist, and to facilitate the actions of such muscles as are connected with it. It is this chiefly, with a greater proportion of the coagulable part of the blood, which, with a due degree of heat, as
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was elsewhere remarked, forms that matter which we call pus ; and which we suppose, and indeed find, to be the natural discharge of ulcers in a sound healthy state of the body ; and it is some change induced upon the nature of this fluid which occasions the varieties in the discharges from ulcers, and from the same ulcer at different times.

Such changes, though they may frequently be, in some degree, influenced by different circumstances, as will hereafter be observed, must yet, in a great measure, depend upon some particular affection of the vessels that separate such fluids from the blood : for, by means of an external topical application merely, we can often change the appearance entirely of the matter of an ulcer ; which in that manner we could never do, if the change produced upon it depended on an alteration effected on the general mass of blood.

According to the nature of the exciting and other causes of ulcers, it is not unreasonable to suppose, that very considerable

differences will occur in their effects upon the secreting organs to which they are applied. Thus, it may readily be presumed, that a burn will produce a very different effect from a cut, a bruise from a puncture, &c. ; and that likewise, according to the particular state of the patient's health at the time, very considerable differences will in the same manner take place.

In what manner these different causes operate in producing such various effects upon the solids or secreting vessels of ulcers, is not, perhaps, to be so easily explained, nor can we determine precisely what the particular changes they induce upon such parts really are. But, as all the causes of ulcers, with which we are acquainted, are of an irritating or stimulating nature, it is probable they all act by producing some inflammatory affection on the extremities of such vessels as empty into the sores ; and therefore, that the nature of the discharge will in every respect depend much upon the degree of inflammation thus raised.

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We have endeavoured to show in the preceding part of this work, that one certain effect of inflammation is to propel a greater quantity of the red globules of the blood into the smaller sets of vessels than naturally they are intended to transmit. This, when it occurs in vessels discharging their contents into ulcers, and especially when the inflammation is considerable, will render the matter very different, both in colour, smell, and acrimony, from genuine pus, which we have already demonstrated to be produced from pure serum only.

Upon this principle it is evident, that many of the varieties of matter which we meet with in sores may be accounted for: But other circumstances likewise occur, which have some influence in producing many of the alterations that are observed. The degree of heat especially, in which the part is kept, as will afterwards be more particularly remarked, and the remora of the fluids for a longer or shorter time in the cavities of sores, must have no small influence in many respects, but especially

on the degrees of consistency observed in them.

From one or other of these circumstances, or from different modifications of all of them, the various appearances in matter afforded by wounds and ulcers, are very clearly explained, without having recourse to that inexplicable doctrine of their pre-existing in the system. But although the case were otherwise, and that the several differences observed could not be so easily accounted for; yet that they depend in a great measure on some *peculiar action or conformation* of the vessels in the part affected, seems to be still more evident and probable than any other opinion hitherto advanced; and is just as certain as a great many circumstances under our daily observation, that we cannot in any manner account for, and yet have no sort of doubt as to their reality.

Thus, in what manner the nerves, which in their structure are all so similar, act in the production of hearing, vision, taste, and

and all the different senses, is, perhaps, impossible ever to determine; as is also the action of the liver, secretory organs of the mouth, ear, &c. in producing fluids of such different natures from the same mass of blood, and which did not previously seem to exist in it: Only that the facts are so, nobody pretends to doubt: And till the contrary is evidently demonstrated, we have the same reason to believe, that the different appearances of ulcers with respect to the varieties of matter afforded by them, are at least more frequently owing to some of the local causes we have enumerated, than to any indisposition of the general mass of blood..

I have said more frequently only, because there are, no doubt, some particular cases of scurvy and of other putrid diseases, as we have formerly remarked, in which the blood is so much dissolved, as to run off by ulcers and other drains in the form of a bloody ichor: such cases, however, occur very rarely, except in high degrees of the true scurvy, which are not often
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met with in any country; and, although they were more frequent than they really are, they could never account for all the varieties of matter afforded by ulcers.

The principal objection, therefore, that has been made to the healing of long continued ulcers, seems, on being examined into, to be no better founded in theory, than it is, as we have formerly remarked, on real experience. For, although it has been strongly inculcated by the generality of authors never to attempt the cure of such sores, yet all of them have probably been either biassed by that favourite opinion of morbid matter in the system; or, a few having led the way and laid down principles, the rest have indiscriminately copied from them, without having recourse to experience.

Nay, we even imagine, and indeed it is pretty evident, that long continued ulcers, instead of proving serviceable to the constitution, are not unfrequently attended with a good deal of risk and danger. Thus, it is very common for ulcers on the shin
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and other parts immediately above the bones, to penetrate so deep as to affect the periosteum, and sometimes even the substance of the bones themselves; which always produce very troublesome and often dangerous cariousities; every risk of which is avoided by having recourse to an issue in a proper situation, at the same time that every advantage is obtained from it as a drain.

The constitution must likewise, in another respect, suffer much more from the long continuance of an ulcer, than it ever can do from the substitution of an issue: For it will surely be acknowledged, that a very considerable part of the matter secreted by ulcers, must be again taken into the system by the lymphatics; and when it happens to be of a corrosive irritating nature, which in old sores it frequently is, not only the general mass of fluids, but even the solids themselves, must thereby in time become greatly vitiated.

Accordingly, there is nothing more common, than very troublesome and even dangerous

gerous obstructions of such external glands as are situated in the course of the lymphatics leading from such ulcers ; and as the glands seated internally are undoubtedly, from the same cause, liable to the same sort of affections, it surely cannot be denied, but that, from this circumstance alone, considerable danger may attend a long continued ulcer.

Thus it appears, that from every consideration, both with respect to convenience and safety, the cure of every ulcer ought to be attempted ; and, with the previous caution of inserting an adequate drain, it may always be done without any kind of risk.

This much it was thought necessary to say in general, with respect to the propriety of attempting the cure of ulcers ; and I have insisted the longer upon this part of the subject, as the opinion generally received of it appears to be very ill founded, and not adopted from experience, but from hypothetical reasoning alone.

When the healing of an ulcer, then, is to

to be attempted, the method to be pursued for its accomplishment must next be attended to. By almost every author who has given directions on this subject, four different states, as they are termed, are enumerated, as being necessary for an ulcer to go through in its progress towards a cure, namely, those of digestion, deterfion, incarnation, and cicatrifation ; and various remedies have been recommended as proper for the different states. and for these only : And, upon this part of the subject, it may be observed, authors have spoken with as much certainty and precision, as if every circumstance in the treatment of ulcers could be regulated at discretion.

Thus all the different kinds of turpentine, as likewise the unguentum *Ægyptiacum*, powders and tinctures of myrrh, euphorbium, aloes, &c. are pointed out as digestives : as detergents, unguentum basilicon, linimentum *Arcæi*, mercurius precipitatus ruber, &c. : with a view to promote incarnation, or the growth of new granulations, powders of mastich, thus, &c. :
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and as cicatrifiers to accomplish the cure, we find recommended a variety both of simple and compound applications, particularly all the astringent boles, earths, lime-water, &c.

Such a number of divisions, however, in the several states or stages of ulcers, with the consequent indications of cure, and remedies recommended for the accomplishment of these, has had a considerable tendency to render the treatment of such disorders more complicated than we find from more late observation to be in any degree necessary. The indications pointed out in the following sections, we hope, will appear to be just and simple; and the effects of the methods of cure we have recommended, will probably be found much more considerable than those which commonly result from a more complex treatment.

We now proceed to a particular consideration of the different classes and species of ulcers; and in pointing out the several distinctions, it will be observed, as we formerly hinted, that they are obvious circumstances

cumstances only, and such as at the same time indicate and require some peculiarity in the method of treatment, that are allowed to have any influence in characterizing a species.

Thus, those of the first class, will all of them, in their appearances, be found very different from one another; and all of them will likewise require something peculiar in the method of cure: And again, those of the second class, it is presumed, are equally well distinguished, and by similar circumstances, not only from one another, but from every one that with propriety could be considered as belonging to the preceding class.

In the first division of ulcers we comprehend, as was formerly remarked, all such as are merely local, and that are not connected with any disorder of the constitution; and, in this view, we mean to consider the following different species, *viz.*

1. The simple purulent ulcer.

2. The simple vitiated ulcer.

3. The

3. The fungous ulcer.
4. The sinuous ulcer.
5. The callous ulcer.
6. The carious ulcer.
7. The cancerous ; and,
8. The cutaneous ulcer.

In the second class of ulcers all such sores are meant to be included as are the consequence of, or that are connected with, any disorder of the system. The different species of which are, the venereal—the scorbutic—and scrophulous ulcers.

It is proposed, as being first in order, to go through the consideration of the several species of sores contained in the first class ; and to proceed afterwards, in course, to those enumerated in the second division.

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SECTION II.

Observations on the simple purulent Ulcer.

§ 1. *Of the Symptoms, Causes, and Prognosis, of the simple purulent Ulcer.*

BY the simple purulent ulcer, is meant, that species of sore, which is entirely a local affection, and is attended with a very inconsiderable degree of pain and inflammation, whilst the discharge afforded by it is always of a mild purulent nature, and of a proper consistence.

This species of ulcer is fixed upon as the first to be treated of, from its being the most simple that can occur, both in its symptoms and method of cure. And, as it is to the state of such an ulcer that every other species of the disorder
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must be reduced before a permanent cure can be obtained, we shall be more particular in our observations with respect to it than otherwise might be necessary : When we come too to treat of the different varieties of ulcers, if the treatment of these shall at any time coincide with that which we are now considering, proper references, in order to prevent repetitions, will always be made to what may be here advanced.

Together with the circumstances already mentioned in the definition of this species of ulcer, it is not improper here to remark, that the granulations which arise in it are of a firm, fresh, red, healthy appearance; and, if no unforeseen accident occurs, the cure, in general, goes on regularly, and without interruption, till a cicatrix is produced.

In considering the origin of the disorder, it may be observed, that even this, the most simple species of ulcer, may be produced by a great variety of causes; but, from the definition we have given of it, it will be understood, that they must all be such as
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act merely by producing a local affection, without in the least disordering the system.

In this view we are to consider wounds of all kinds that do not immediately unite without the formation of matter; and this whether they may have been attended with loss of substance or not. Under this head we may rank all chirurgical operations attended with incision into any part of the body.

Among other causes of such ulcers, must be mentioned, burns, in whatever manner they may be produced, whether by fire, aquafortis, scalding liquids, &c.; also bruises; and in short, every external accident that terminates in suppuration, with an opening as a consequence of it.

We do not, however, by any means intend to assert, that a simple purulent ulcer is always a necessary and an immediate consequence of the different circumstances we have enumerated; for the very reverse of this is frequently found to take place. Thus burns, especially, are sometimes

known to produce very troublesome vitiated ulcers ; and bruises, as well as all the other causes we have mentioned, are not unfrequently attended with the same effect. It is only contended, that some one or other of them may in general be considered as the primary or original cause of such ulcers, independent of any appearances they may exhibit before they are brought into the simple purulent state.

With respect to the prognosis in this species of ulcer, it should almost in every instance be exceedingly favourable ; more or less so, according as there is a less or a greater loss of substance, and according to the situation of the sore and habit of body of the patient. These circumstances being attended to, together with what has already been mentioned upon ulcers in general, there will never remain any doubt with respect to the prognostic.

Before we proceed to a particular investigation of the means to be employed in the cure of a simple ulcer, it will not be improper to offer a few general observations
upon

upon the manner in which nature seems to operate in accomplishing the cure of sores, as also on the effects of such assistance as may be afforded by art for effecting the same purpose.

§ 2. *Remarks on the Growth of new Parts in Sores.*

THERE is evidently in every ulcer, in its progress towards a cure, a growth of parts that tends considerably to diminish any vacancy the complaint or accident may have occasioned. This substance, from the granulated form it assumes, has been generally termed Granulations; and it appears, in every wound, in larger or smaller proportions, according as the patient is young or old, healthy or otherwise; in so much that, in young plethoric people, the increase of parts is often so considerable, as to rise above the level of the neighbouring teguments, and to require the use of different caustic applications with a view to repress it.

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When any loss of substance that may have been produced, is thus, as far as possible, supplied, the remaining part of the cure consists in the formation of a cicatrix. This is effected, either when nature alone produces an exsiccation, as it were, of the surface of such granulations as had been previously raised, and in that manner forms a kind of cuticle or scarf-skin; or, it is obtained by art from the use of drying astringent applications.

By the formation of new parts, or granulations, it is not here, or wherever the term may be made use of, meant to insinuate, that we suppose real muscular or other organised parts are ever regenerated in those wounds or ulcers wherein they have been destroyed; but merely to express that production, which, if the constitution be sound, always takes place to a certain degree in ulcers, attended with loss of substance.

The real nature of this production is not, perhaps, easily to be determined: but, from its several appearances, it is obviously
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very vascular; from which it is probable, that it consists in an elongation or extension of the small blood-vessels that have been divided, with a considerable proportion of inorganic cellular substance; which, again, is most probably formed by a matter secreted from the mouths of such vessels, and which serves chiefly as their support or means of connection.

We are not to imagine, however, that any very extensive loss of substance is ever to be entirely filled up in this manner: for although, in particular circumstances, nature does effect the repair of very considerable accidental losses; yet, in general, her operations of this kind are very limited. In youth, indeed, before the different parts have arrived at their full growth, and while the several vessels are yet daily extending themselves, considerable losses are, often, almost completely repaired: but we ought not, even at this period of life, to attribute, as practitioners commonly do, such cures entirely to the growth of new parts; for on reflection it appears very evident, that a circumstance of a quite opposite nature al-

ways contributes in a considerable degree to their accomplishment.

§ 3. *The Decay of the contiguous sound Parts, is a necessary circumstance in the cure of Ulcers.*

THUS, though in the healing of every ulcer, whether it be attended with loss of substance or not, a growth of new parts, as we have already remarked, generally takes place to a certain degree; yet the greatest part of the vacancies, which in these cases always occur, is evidently more diminished by the decay or decrease of the divided parts that remain, than by any other cause. Indeed, the effect with respect to a cure is ultimately the same as if all such deficiencies were actually supplied with a new substance: for, if the cavity of an ulcer be diminished, or even entirely annihilated, by the subsiding or wasting away of the parts with which it is surrounded, there is then no kind of necessity for the formation of others: And, in effect, cures are often obtained, especially in old people, without
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any evident growth of parts whatever, and this too in very considerable and extensive ulcers.

This part of nature's process in the cure of ulcers, is to a certain degree obvious even in the smallest sores: but the larger the ulcer, the more evident always it appears; and particularly it becomes exceedingly remarkable in the cure of that very extensive ulcer, which commonly remains after the amputation of any of the extremities, especially of the thigh.

In these instances, indeed, there is never any considerable formation of new parts observed to take place; and the cure always advances, just in proportion as the skin is allowed to contract by the wasting away or decrease of the parts which it surrounds: and such a decay, or diminution of bulk, is not, in any of these cases, confined to one set of parts only; but extends equally to all, the bones perhaps only excepted.

Thus, after the cure of a stump, every vessel, even the largest, is almost entirely obliterated for a considerable extent: at least

least nothing is found to remain of them but the thin membranes that composed their coats, now shrunk into very small inconsiderable cords; the fibres of the different muscles are, in the same manner, greatly diminished; and the cellular substance seems frequently to be almost entirely annihilated. I have happened to meet with several opportunities of dissecting the stumps of patients after death, and the appearances were uniformly as is here related.

There is yet another case of ulcer, in which the cure seems with still greater probability to be chiefly effected by the influence of the same cause. In a large incised wound, with little or no loss of substance, its edges, in the course of twenty-four hours, become greatly swelled and tumefied; they are thereby kept at a considerable distance from each other, and the whole exhibits the appearance of a large foul ulcer. In this situation it would remain for a considerable length of time, if it should either be neglected, or treated with
acrid

acid irritating applications : As soon, however, as by warm emollient poultices, and other proper dressings, a free discharge of pus is obtained, the inflammation diminishes—the swelling of the sides of the ulcer subsides—and the fore gradually contracts to such a degree, that its edges, which before were much separated, are now brought near to one another.

The same phenomenon is observable in a remarkable degree, in the cure of every ulcer attended with much inflammation ; where a great part of the treatment consists in removing the pain, irritation, and swelling, which, in such cases, always takes place.

Every small boil is found to exhibit the same appearances : On a boil being laid open, an ulcer is always left, and the cure depends chiefly on the removal of the inflammation and swelling of the surrounding parts.

These, however, it may be said, are only instances of preternatural swellings, perhaps originally excited by the presence of
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some acrid irritating cause ; upon the removal of which, they may be expected to subside, and the ulcers occasioned by them to contract and heal. The same circumstance, however, has been shown to take place even with respect to the substance of sound parts ; particularly, as we have already remarked, after the amputation of a member ; the blood-vessels, nerves, and muscles, in all such cases, being constantly found to suffer a very considerable decay.

The same thing is likewise known to happen in all deep transverse wounds that penetrate through the different muscles, so as to reach the bone : for a cure, in these cases, is seldom to be obtained by the first intention, especially when any loss of substance has been produced. In the cure of ulcers which remain after such wounds, an evident decay of the extremities of the divided parts always takes place : and what shows it in a remarkable manner is, that, in all such cases, the vacancies occasioned by the wounds are never so large and conspicuous immediately after the cure, while
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the patient yet remains lean and emaciated, as they afterwards become, when in the course of time, by the recovery of health and appetite, all the parts of the body, and, among others, those which have been divided, come in a great measure to regain their former bulk ; and when, accordingly, all vacancies that have been occasioned by such wounds appear to be more considerable.

When, indeed, a wound penetrates only into the cellular membrane, or does not entirely divide the muscles, the cavity produced by it, does, no doubt, in the course of time, gradually diminish, so as sometimes to disappear altogether. This, however, is in consequence of the parts below extending in their diameters ; which, in the other case we have supposed, of a wound with loss of substance penetrating to the bone, never can happen.

This opinion, with respect to the cure of wounds depending in a great measure upon the decay of the surrounding parts, was first introduced by a very ingenious French practitioner,

practitioner, Mr Fabre: and, like every new doctrine, it has by some been denied to have any sort of influence; whilst, by others, much more remarkable effects have been attributed to it, than, on examination, it will be found intitled to.

Thus Mr Fabre, and Mr Louis another surgeon of eminence in Paris, assert, that wounds of every kind which do not heal by the first intention, are cured entirely by an *affaïsement*, as they term it, or a wasting away of the extremities of such parts as have been divided; and they absolutely affirm, that there never does occur any lasting production of new parts in the healing of sores*.

Such an assertion, however, is entirely contradictory to daily experience; and seems to be merely the consequence of a lively imagination entering keenly into the support of a favourite doctrine: for, altho' it will readily be allowed, that a very considerable part of the cure in every ulcer, especially in old people, is effected by the
cause

* Vid. *Memoires de l'Academie de Chirurgie*, tom. 4.

cause we have assigned; yet few practitioners will, probably, deny, that in many instances, particularly in young people, very considerable productions occur of that vascular substance we have formerly described; infomuch that it is sometimes a very troublesome matter to suppress such excrescences, so as to keep them within proper limits.

As a farther confirmation that a growth of new parts does, to a certain degree, frequently occur; many very remarkable instances might be mentioned from different authors, of deep and extensive losses being almost entirely repaired by nature. It would here, however, be very foreign to our purpose, and especially as it does not appear to be in the least necessary; for by every candid practitioner it must be acknowledged, that such occurrences are by no means uncommon.

Though the opinion, however, cannot be admitted in such an extensive latitude as those who introduced it might incline; yet, from the several arguments we have
advanced,

advanced, it will appear to have at least a considerable share in the cure of every ulcer; and from all that has been said with respect to it, this inference, we think, may be drawn, that although the generality of ulcers are supplied with a species of new production, yet to a certain extent the cure of all such disorders depends very much upon the contraction of the surrounding skin, in consequence of the parts lying below it subsiding or diminishing in bulk.

This, when there has been any preternatural tumefaction induced, as frequently happens in a particular manner in scrophulous sores, is effected merely by the discussion of such swellings; but in others that are attended with a real loss of substance, the extremities of even the sound remaining parts, must, as we have already remarked, undergo very considerable diminutions.

§ 4. *Of the Effects of Compression in the Cure of
Ulcers.*

FROM this view of the matter, a very material piece of practice, which we find to have been long ago known to practitioners, but which of late has, for no evident reason, however, been almost entirely laid aside, comes to be clearly accounted for: I mean, the use of the laced stocking in ulcers of the legs; which, by Wiseman and many other old writers, is much recommended, with a view to prevent those œdematous swellings to which patients with such disorders are commonly liable.

With this view, the laced stocking is no doubt to be considered as the most effectual remedy; but it has, in all such cases, I am persuaded, been much more frequently of service, by serving to promote that diminution of the adjoining parts, which we have already shown to be so necessary for the cure of every ulcer: As in this respect it acts merely by the degree of compression
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afforded, it must evidently prove equally serviceable in whatever part of the body sores may be situated; and accordingly, I have constantly found, that ulcers in the arm, and wherever a continued gentle pressure could be applied, have received more benefit from an application of this kind, than from all the other remedies usually employed.

As it is the pressure therefore only, which in such cases is wanted, it is most conveniently made, both in the legs and elsewhere, by means of a pretty broad roller applied spirally, if necessary from the extremity of the member, to a little above the diseased part; but when no œdematous swellings occur, it generally proves sufficient to make the roller pass from about three inches below the sore, to two or three inches above it. In ulcers of the legs the roller should commence at the toes, and should be carried to the knee joint, or at least to two inches above the sores: and, even in ulcers of the thighs, if any œdematous swelling occurs in the leg, as is often the case, the
bandage

bandage should commence at the toes ; but when the leg is altogether free from swelling, this is seldom found to be necessary. By means of a roller, compression can be made more directly on any particular part, than with the laced stocking ; it is more conveniently applied too, and it generally gives less uneasiness to the patient. It is likewise more easily obtained : for the difficulty of fitting a laced stocking, with that exactness which this application requires, is so great, that very few tradesmen are capable of making it ; whereas a roller may at all times be easily procured.

Rollers, for this purpose, ought to be about two inches and a half broad ; and on experience it is found, that they answer better when made of thin flannel of the Spanish or Welsh kind, than of any other article. This not only keeps the parts warmer than linen, which, in ulcers of every kind, proves commonly serviceable, but the softness and elasticity of the flannel prevents it from fretting and galling the parts to which it is applied ; an incon-

venience frequently experienced from linen bandages.

In the application of such a bandage, it will readily be understood, that it should always be done in such a manner as particularly to support the skin, so as to occasion as near a conjunction as possible of the edges of the fore. For as it is well known, that there never occurs any production of new skin, or even elongation of the old, as much as can be easily saved should always be brought to cover such parts as by its retraction may have been denuded; for all such as remain uncovered, have afterwards for their protection a thin scarf-skin only, which, in strength, as well as in every other circumstance, is greatly inferior to the *cutis vera*.

From a due attention to this point, much more assistance is to be obtained in the cure of wounds and ulcers than is commonly imagined: for, in by far the greatest number of situations, every wound not attended with much loss of substance may be brought to heal by the re-union of the divided

vided parts ; which, in every case that can occur, is by much the most eligible method of cure. When this can be properly accomplished immediately upon a wound being inflicted, it should always be done : but very often, when that precaution has either at first been neglected, or when it has not then been practicable from a too great retraction of the parts, it may frequently be effected afterwards in a later period of the disorder.

For, in large wounds, when in the space of about fourteen days a full suppuration has come on, and the inflammation which originally took place has in a great measure subsided, the sides of such wounds, or ulcers as they then are, may by proper compression be either entirely united, or at least brought so far to approach one another, as greatly to diminish any vacancy that at first took place; a circumstance which renders the cure of such complaints much more short and easy than it is otherwise found to be.

In the application of compression, for
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the purpose we have mentioned, it will be understood, from what we have said already, that it is not to be employed in any species of ulcer while any considerable degree of inflammation remains ; but as soon as that symptom is pretty much removed, it may always be put in practice with the greatest safety.

The remedy of which we are now speaking, namely, compression, proves so generally useful in the cure of ulcers, that after the inflammatory stage of sores is over, it ought in, perhaps, every instance to be employed : Cures may no doubt be effected by other methods ; but I will venture to say, that in the most troublesome of all sores, habitual ulcers of the legs, more lasting cures may in general be obtained by a proper application of pressure, than by any other means with which practitioners are as yet acquainted.

The other most remarkable part of the process of nature in the cure of ulcers, consists, as we have already observed, in the formation of a certain kind of new substance ;

stance; the production of which we in some measure attempted to explain, by supposing it to consist in an extension of the divided vessels, with a considerable increase of cellular substance. This, in a sound healthy state, appears, in every sore, in the form of an infinite number of very small tubercles, of a bright, fresh red complexion, and in general of a tolerably firm organisation.

As, in diseased states of the body, these tubercles or granulations put on very different appearances, according to the particular nature of the complaint with which they happen to be connected, such peculiarities as are thereby occasioned in the several species of ulcer enumerated in the ensuing sections will be all particularly taken notice of; as will likewise the various methods of assisting nature, not only in the correction of the diseased states of such productions, but in promoting a firm and healthy growth; for although this is chiefly to be considered as the work of nature, yet art in different circumstances is fre-

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quently able to afford her very considerable assistance.

Though the means necessary for this purpose will be afterwards particularly pointed out, it will not be improper, in the first place, to make a few observations with respect to their general tendency, so that the operation of all of them may be then more readily understood.

§ 5. *Of the Advantages to be obtained from Art, in the Production of Granulations in Sores.*

THE principal advantage which in this respect accrues from art in the cure of sores, is the removal of such causes as tend to retard the natural exertions of the system; and although the different obstructions which nature meets with in her progress are exceedingly various, yet they may all with propriety enough be reduced to two general heads, namely, to such as may be considered entirely as of an internal nature, and to those again which operate merely as external or local causes.

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Of the former kind are, every general disorder to which the constitution is liable; as it is by experience found, that a sound healthy state of the system only, is capable of producing proper granulations.

Thus the cure of such ulcers as occur in lues venerea, scrophula, and scurvy, can never be properly effected unless the general affection of the habit be first corrected.

A low emaciated state of the system too, proceeding either from a very poor diet, or from immoderate evacuations, is found to be very prejudicial to the growth of new parts: for, as the supply of such accidental losses as occur in sores, must render it necessary to supply the system with a larger proportion of nutritious matter than is requisite when there are no losses or deficiencies to be repaired, if a patient in such a situation be kept upon a low allowance in point of diet, and especially if at the same time the discharge from the ulcer is considerable, the repair of any deficiencies must, in such circumstances, it is evident, go on
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much more slowly than when the contrary of these occur. And in fact we find, though a very plethoric habit of body, with a full allowance of heating nourishing diet, is not proper for the cure of any kind of sores; yet that an emaciated state, and a low debilitating regimen, prove equally prejudicial.

A middle course, therefore, should in all such cases be observed, and the patient ought to be kept in a situation at least not much more reduced than that of his ordinary or natural health. But this circumstance must in a great measure be regulated by the particular exigencies of every case: for, in some patients of a highly inflammatory diathesis, every scratch almost is apt to inflame and become troublesome; so that, when ulcers of any magnitude occur in this state of the system, it is often necessary to keep the patient on a very low allowance.

Others, again, of a contrary habit of body, who have been much reduced, and who have no particular tendency to inflammatory

tory complaints, very frequently bear, and receive much benefit from, more nourishing foods than they were formerly accustomed to ; so that it must always depend on the judgment of the practitioner, to point out such a regimen as may seem best suited to the particular situation of every patient.

The local obstructions, again, which occur to the formation of new parts in ulcers, are of various kinds : but they may all be reduced to two general divisions ; namely, to such as act solely in a mechanical manner by exciting irritation ; and those that are evidently of a corrosive nature.

From daily experience, it is found, that granulations in sores, are, *cæteris paribus*, always most quickly formed when the part is kept entirely free from pain ; and, when duly attended to, the reason of this appears sufficiently obvious. For whatever proves the cause of much uneasiness, must excite in the extremities of the divided vessels, as irritation does in every sensitive part to which it is applied, a preternatural degree of action or stricture ; which is a
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state entirely opposite to what we have shown to be the most favourable for the production of new parts ; for as this very probably depends, as we have elsewhere remarked, on an elongation of the divided vessels, the more easy and lax these are preserved, the more readily always will such an extension advance.

And we do accordingly find, that whatever tends to keep up any considerable inflammation in sores, has a certain effect in putting a total stop to the production of granulations.

Hence the necessity of removing from wounds and ulcers, every extraneous body, or whatever tends to produce irritation; and from the same circumstance is accounted for the great advantage of dressing seldom, and of using mild simple applications, instead of following the practice which formerly prevailed, of dressing much more frequently, and that too with very complex irritating ointments and washes.

The other set of local causes that tend to obstruct the formation of new granulations,

tions, and which were said to be of a corrosive nature, are chiefly all those vitiated discharges, which, by neglect or improper management, are so apt to occur in every ulcer. For, almost every kind of matter afforded by sores, that differs much in its nature, either in colour or consistence, from mild and good pus, possesses constantly a greater or less degree of acrimony or causticity; which in some cases is so very remarkable, that not only the granulations are corroded and prevented by it from rising, but even the neighbouring sound parts are often greatly injured.

In all such disorders, the principal intention to be kept in view, is the correction of this acrid state of the matter, whilst at the same time we attempt to convert it into what is termed laudable pus; the several means for effecting which will afterwards in the different sections be particularly enumerated.

These different obstacles to the formation of granulations being at last removed, nature will always, as far as possible, carry
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on their formation; and when, in due time, such vacancies as occur in fores, are, either by their means, or by the effect of compression, or by both, as much as may be, supplied, the only remaining part of the cure, as we formerly remarked, is the formation of a cicatrix. This, too, is frequently, in a great measure, effected by nature; but it can often be considerably promoted by the use of proper applications.

Whilst any deficiencies in fores remain to be filled up, and whilst the parts are for this purpose still shooting and extending, the very mildest applications, it was remarked are the most proper; but, when the loss of substance has either been repaired entirely, or to such a degree as the strength and other circumstances of the patient will permit, those applications, which in the extending state of the vessels would have been prejudicial, now become proper and necessary.

Thus, all the mild styptic powders and washes, by contracting or corrugating the
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extremities of such vessels as have been divided, and by producing an exsiccation of that inorganic cellular substance in which these are enveloped, tend to induce over the surface of sores that delicate thin covering termed Cicatrix; which, though it is at first always very tender, yet in course of time it commonly acquires greater strength, by a farther addition of thickness, from that same cellular membrane which at first contributed to form it.

Having premised these general observations with respect to the manner in which the cure of sores seems to be effected, and which apply in a great measure to every species of the disorder, we now proceed to the more particular treatment of the simple purulent ulcer.

§ 6. *Remarks on the Indications of Cure, and on the Remedies necessary in the Treatment of the simple purulent Ulcer.*

IN the cure of this species of ulcer, as there is very little inflammation, and no pre-

preternatural swelling supposed to take place; but merely a vacuity, either from a real loss of substance, or from a retraction of parts simply divided, the discharge at the same time being of a mild purulent nature; the only indications that occur, are,

1st, To diminish, as much as possible, any vacancy the ulcer may have occasioned; and,

2^d, To promote the formation of a cicatrix.

For the more effectual accomplishment of the first of these, the concurrence of two different circumstances is requisite; namely, The formation, to a certain extent, of new granulations; and the diminution or decay of such parts as lie immediately contiguous to the ulcer.

We have formerly shown, that either a considerable degree of inflammation, or the presence of any acrid corrosive matter, are both exceedingly detrimental to the production of new parts; so that this part of the cure ought to consist entirely, or
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at least chiefly, in such a treatment as tends most effectually to the prevention of these causes.

With this view, the first circumstance to be attended to, is, to avoid the use of the several warm gums, balsams, and spirituous tinctures, as we find recommended in every case of ulcer, by all the older writers, and as is still continued by many of the modern foreign practitioners.

For although, in some species of ulcers, different articles of this kind may be used without much inconvenience, and in certain circumstances may sometimes even be of service; yet, in every case of simple ulcer, they always do mischief, and in the treatment of such sores should certainly be laid aside; as ought also every application that can occasion much pain or irritation: for whatever has this effect, must always increase the inflammation; and, consequently, for the reasons we have formerly given, must necessarily retard the cure. Even the common basilicon and linimentum Arcaei of the shops, are, for the

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same

same reasons, improper; for every ointment with any large proportion of resin or turpentine, always irritates very considerably.

The only advantages which, in such cases, ought to be looked for from the use of any ointment, should be, its allowing the different dressings to be renewed with less pain than they otherwise could be; and hence a composition of the blandest materials, is, for such purposes, preferable to every other.

In this view, any ointment similar to the unguentum cereum of the Edinburgh Dispensatory, answers exceedingly well: It is prepared with pure white wax, spermaceti, and fresh olive-oil, without any other addition.

The quantities of each of the articles, as there prescribed, are, four ounces of wax, three ounces of spermaceti, and a pound of oil; a composition which forms an ointment of a very proper consistence, and which ought to be kept in every shop, as
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the most useful dressing for all the more simple kinds of ulcers.

In such cases as we are now treating of, an ointment containing a proportion of any of the saturnine remedies, is sometimes found to prove useful; and as Goulard's cerate is a very neat preparation of this kind, we think it right to communicate the prescription he gives for it.

Take four ounces of refined wax and one pound of oil; and keep them over a slow fire till the wax is melted, taking care to stir them gently. Having previously mixed four ounces of the extractum saturni with six pounds of water, add it by little and little to the wax and oil, now cooled in a vessel of a proper size*. Let them be well incorporated together with a wooden spatula, always taking care to let the quantity of water first put in be thoroughly absorbed before any more is added: This cerate may be made stronger or weaker, by adding more or less of the extract. This,

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* For the preparation of the extractum saturni, see page 44.

as well as every ointment, should always be prepared in small quantities, as it is of much importance in the treatment of sores to employ such dressings only as are perfectly fresh and free from rancidity.

Pledgits of lint, spread thin with either of these ointments, are in general applied without occasioning the least pain; and the use of them in this manner, indeed, is never attended with any kind of inconvenience: for, though all oily applications to sores have been condemned by some, from an apprehension of their turning rancid; yet I can say from experience, that under proper management they never become so. Nor is it easy to suppose that any such preparation, as these we have mentioned, when composed of fresh materials, can ever become putrid between the different dressings of sores, which very rarely ought to be more distant than twenty-four hours from one another.

The frequent dressing of sores is now very generally, and very properly, condemned; but, as practitioners are apt
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to run into opposite extremes, we find that by some it is recommended to renew applications of this kind not oftener than once in five, six, or eight days. It rarely, if ever, happens, however, that this can be proper. It affords no advantage to the sore: for we can assert from frequent evidence of both methods, that an ulcer, except in the latest stages of it when the cicatrix is nearly forming, will in general cure more easily by the dressings being changed daily, than when not renewed so frequently; and it is attended with this advantage, that the patient is kept clean, and the air of the apartment in which he lies is preserved in a more pure state than it ever is by a contrary management. We are therefore clearly of opinion, that although the dressings of sores ought not to be very frequently renewed, yet that the contrary extreme would prove still more prejudicial: In hospitals especially, where it is so difficult to preserve the air pure and untainted, this is a circumstance which merits the greatest attention; more indeed

than practitioners commonly bestow upon it. The leading circumstance which ought to direct us in the frequency of dressings is, the quantity of matter afforded by sores: No application should be removed till it can be done with perfect ease; but whenever there is any considerable quantity of matter in the cavity of an ulcer, the dressings ought to be renewed daily.

One principal inconvenience supposed to arise from the frequent dressings of sores, is the influence produced upon them by exposure to the air; but if new dressings are so prepared as to be immediately applied on the others being removed, every inconvenience from this cause may be avoided. This we must remark, however, is a point of such importance as to deserve very serious attention; for a too free admission of air to sores always interrupts the cure, not only by acting as a powerful irritating cause, but by tending to vitiate the nature of the matter discharged by them.

Another objection too has been made by different practitioners, to the use of unctu-

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ous applications in the treatment of sores, namely, that they are apt to render the parts lax and flabby, so as to prevent the new granulations from being so firm as they otherwise would be.

This I know, indeed, to be the consequence of a long-continued use of warm emollient applications, especially of fomentations and poultices: but an ointment of the kind we have recommended, very thinly spread, never does produce that effect, and it always proves a more agreeable application than dry charree alone; which, unless the sores to which it is applied are covered with large quantities of matter, always occasions a good deal of irritation, and in some degree is attended with the same effects as gentle escharotic applications; a circumstance that seems to have been well known to many of the old writers on surgery, who frequently recommend dry charree for suppressing the undue growth of parts, when, in the cure of sores, it happens to be too considerable.

I have long been an enemy to the indif-

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criminate use of dry charpee or lint in fores. This will appear from the contents of the preceding paragraph, which was published six years ago, and I never had any reason to alter my opinion. The effect of custom, however, is so powerful, that it may be long before the use of dry lint is so universally laid aside as it ought to be: but, from much experience in matters of this kind, I am clearly of opinion, that a general use of it as a dressing tends much to retard the cure of ulcers; and whoever will have the resolution of deviating from the established practice, and will employ any mild ointment as a common application to fores, will receive much satisfaction from doing so. When speaking of mild dressings, I would wish to have it understood, that it is in the simple purulent state of an ulcer only, in which much utility is to be expected from them. After all that has yet appeared to the contrary, not only in the writings of many of the ancient authors, but even in those of some modern practitioners, I am perfectly convinced, that
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in this state of an ulcer a cure will be more easily and more quickly obtained by mild dressings than by any other means: but in the sloughy foul state of some sores, applications of this kind, it must be owned, have little or no effect; and in such circumstances some of the warm irritating dressings, to be afterwards pointed out, are the only means from which relief is to be expected.

In all such ulcers, therefore, as we are now speaking of, those pledgits, which, at the different dressings, are applied immediately to the sores, should be spread with some such ointment as those we have recommended.

The next circumstance requiring attention in this part of the cure, is to employ such means as may preserve the matter discharged from sores in its proper purulent state, both with respect to colour and consistence; for, unless very particular attention be given to this point, the best conditioned matter always degenerates sooner or later into a worse kind; and as matter of a real purulent nature is the mildest and least acrid discharge that ulcers ever afford,
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every precaution should be taken to preserve a continuance of it in this state.

In the simple species of ulcer now under consideration, the principal attention which for this purpose is requisite, is the preservation of a due degree of heat in the part affected. This, in whatever part of the body the disorder is situated, is exceedingly necessary: but it is more particularly so in the extremities than any where else; for the natural heat of these parts is not near so considerable as it is in the trunk and other situations where the action of the heart has more influence.

We have formerly shown in the treatise on inflammation, how necessary a proper degree of heat is for the formation of pus in every case of abscess: and as it is no less so in the treatment of ulcers, it should always be very particularly attended to; for the want of a due regard to this circumstance alone, very often occasions the degeneracy of simple ulcers into those of much more inveterate dispositions.

Whilst any degree of inflammation remains

mains in ulcers, the easiest and best mode of applying heat is by the use of warm emollient cataplasms; but, as soon as the inflammatory symptoms are much abated, these should be immediately laid aside: For, in consequence of the very powerful relaxing properties of warm emollients, a too frequent and long-continued use of them, as we have already observed, is apt to induce too much laxity or want of tone in the parts to which they are applied. And the same purpose may be then answered equally well, by applying over the dressings thick quilted coverings of wool, cotton, or of any such substances as most effectually retain heat.

The good effects resulting from a proper attention to this kind of management, I have on many occasions experienced; and although it may not be of so much importance in cases of simple ulcers merely, as in those of a worse kind, yet even in the slightest that occurs it should never be omitted.

In almost every species of ulcer, poultices
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are found to be very useful applications in one part or other of the cure: and altho' in such as are attended with much inflammation, they may no doubt prove serviceable by their emollient properties; yet the degree of heat they afford, by its effects in promoting a good suppuration, is, I am persuaded, independently of every other circumstance, the greatest advantage they ever produce.

But poultices, when used with this intention, unless they are much more frequently renewed than they generally are, rather do harm than good; for, in order to obtain all the advantages that may be derived from them, they should be renewed at least every three hours. But this subject having been more fully treated of in the essay on inflammation, it is not now necessary to enlarge farther upon it; for the same observations we had then occasion to make respecting the effects of heat in promoting suppuration, apply with equal force and propriety here.

These different circumstances, namely,
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the prevention of irritation. by very mild dressings, and the preservation of a proper degree of heat in the part affected, are the most certain means both of promoting the growth of new parts, and for obtaining and keeping up a discharge of good matter. They should both, therefore, be all along particularly attended to; either till there does not seem any farther deficiency to fill up, or till nature appears to have effected as much in the production of a new growth of parts as the circumstances of the case will permit.

The other most material part of the first indication in the cure of ulcers, is to be obtained; as we already observed, by means of gentle compression: and this, it may be remarked, is to be employed at the same time, and to be used along with the several applications we have already mentioned; for as soon as the inflammatory state of an ulcer is over, and a discharge of good matter is induced, slight compression by means of a roller, as we formerly recommended, may be immediately applied, and should

should be continued during all the remainder of the cure. It should be applied too, as was then directed, in such a way as not only to produce a gentle pressure upon the parts immediately surrounding the ulcer, but likewise to serve as a support to the skin and other teguments, so as to prevent their retraction, which otherwise, in large ulcers especially, is very ready to happen.

When, by a proper attention to the most material circumstances in the treatment, and on the necessary remedies being continued for a longer or shorter period according to the size of the fores and habit of the patient, any loss of substance which occurred is at last as far as possible supplied, the next indication of cure comes then to be attended to; and that is, the formation of a cicatrix.

We have formerly observed, that a cicatrix is frequently effected by nature alone; but, in many cases, when every deficiency appears to be even thoroughly supplied, yet still a cure is difficult to accomplish: The surface of the fores remains raw,
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and at the same time discharges considerable quantities of matter. In such cases, it becomes necessary to lay aside the ointment recommended for the preceding part of the cure, and to use one of a more styp-tic drying nature.

In this view, the unguentum album prepared with cerufs, as is ordered in different dispensatories, answers exceedingly well; better, indeed, I have often thought, than the ceratum e lapide calaminare, so commonly employed as a dry application. Lime-water, too, often proves a very effectual application in this situation of ulcers: By bathing the sores with it once or twice daily, and using the cerufs ointment or common cerate as a dressing, a cure will frequently be effected, when it cannot possibly be obtained by emollients: Ardent spirits, too, will often answer the same purpose, of putting a stop to the discharge afforded by sores in this state, and of drying or corrugating the soft cellular substance upon their surface into a firm cicatrix.

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On some occasions, again, a proper cicatrix is prevented from forming, by the growth of new granulations being so considerable as to rise above the surface of the neighbouring sound parts. In such cases, it becomes necessary to have recourse to different astringent or even escharotic applications, of which the most effectual among the milder caustics is blue vitriol; which, unless in very obstinate cases, almost always proves sufficient; and when it happens to fail, nothing weaker than the common caustic stone is ever found to prove effectual.

In slight cases of this kind, indeed, a cure is often effected by the use of dry charpiee alone; a pretty tight bandage being at the same time applied over all.

This, we must observe, however, is a situation of a sore which frequently proves more perplexing and troublesome than any other part of the cure: for it often happens, even in the most healthy constitution, and when the preceding part of the cure has gone very properly on, that a cicatrix cannot

cannot be induced, and the granulations newly formed continue raw, and do not show any tendency to heal: In this situation, when the means we have already advised do not prove effectual, compresses moistened in strong ardent spirits, as we have mentioned above, particularly in French brandy, being applied under the roller, will often accomplish a cure: or spirits used in this manner, may be alternated with tincture of myrrh, or with a solution of blue vitriol in water; a practice which in different instances I have found to succeed, when the means usually employed in such cases have all failed.

In the preceding observations we have enumerated such local applications as have been found to be most effectual in the cure of ulcers; but there are some circumstances, which, though of a more general nature, are yet equally necessary to be attended to.

In every species of ulcer, even in those of the most simple nature, rest of body, especially of the part affected, is particu-
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larly requisite ; infomuch, that, unless this circumstance be attended to, all the applications that can be used, prove commonly of little importance. In disorders of this kind, too, occurring in the lower extremities, the affected limbs should be always kept, as much as possible, in a horizontal position, as being the posture which proves most favourable for the circulation of the fluids.

Rest and an horizontal posture, have by almost all practitioners, both ancient and modern, been looked upon as absolutely necessary for the cure of ulcers in the lower extremities. In some late publications, however, it is asserted, that rest is so far from being necessary in such cases, that a cure is just as easily and certainly performed whilst patients are going abroad, as whilst they are under the strictest confinement.

In some very slight ulcerations, this may sometimes be the case ; and with the assistance of a pretty tight bandage or laced stocking, applied so as to support the parts properly, even sores of a worse kind may
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be frequently cured, and the patients at the same time be allowed to take gentle exercise. But, in general, so far at least as my experience goes, the regulations upon this point, enjoining strict confinement in every ulcer of the extremities, as handed down to us by all the ancient writers, appears to be very well founded; for, according as they are more strictly attended to or not, the cure commonly advances quickly or otherwise.

It does often happen, indeed, as we have said above, that ulcers of even a bad nature are cured without any assistance from confinement or a horizontal posture of the limb. This I have frequently met with; and at this time I have different cases under my care, of ulcers going on towards a cure, whilst the patients are daily going abroad. But their being allowed to take this liberty, has always proceeded from necessity; as there is nothing of which I am more perfectly convinced, than that ulcers on the lower extremities will cure sooner, more easily, and to more real ad-

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vantage,

vantage, whilst the limb is preserved in a horizontal posture, than they will do whilst the patient continues to take exercise. But when the circumstances of patients prevent us from receiving the advantages to be derived from confinement, we are reduced to the necessity of attempting the cure of ulcers by other means; and, in such circumstances, nothing answers so well as pressure applied by a roller in the manner we have uniformly mentioned in this as well as in the former editions of this work.

As confinement, during the cure of ulcers on the legs, proves always inconvenient, various means have been proposed for rendering it unnecessary; and it has not only been said, that cures may be performed without any assistance from confinement or a horizontal posture, but by some it is alledged, that they are even prejudicial*.

We have already remarked, that ulcers of the legs may be healed while patients are
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* This has been asserted by other writers; but it has been more fully enlarged upon of late, in a Treatise upon ulcers of the legs, by Mr Underwood of London.

daily going abroad ; and especially if a due compression be continued : But, notwithstanding all the arguments adduced in favour of the practice, I have not yet heard of any which ought to set aside the opinion we have endeavoured to inculcate upon this point, and which, indeed, has in all ages been allowed to be well founded ; namely, that a horizontal posture is highly proper in the cure of every ulcer of the lower extremities. The means proposed by Mr Underwood, I have tried on various occasions ; they have sometimes proved successful ; but whatever may have been the case with others, they have never, in the course of my experience, effected cures so easily and speedily, or which have proved so permanent, as the means we have recommended, of employing mild dressings to simple sores, together with a horizontal posture in every ulcer of the leg.

In almost every case of ulcer, particular directions have been given by practitioners, with respect to regimen ; and, in general, a low spare diet has been prescribed. Such

regulations, however, when carried to a great length, most constantly do mischief: for they seldom fail to relax the habit considerably, and to produce other disagreeable effects, particularly on the nature of the matter discharged from fores.

The only attention, which, in this respect, seems to be necessary, is to guard against all excess in eating or drinking; for whatever has the effect of producing merely a slight temporary fever with any additional inflammation, proves, in such cases, always very prejudicial: But, in place of a diet much lower than usual, as is most frequently recommended, a more full and nourishing regimen, than the patient even in a state of health has been accustomed to, is often found to prove serviceable.

For the discharge of purulent matter proves always so very debilitating, that in large ulcers, when great quantities of it are afforded, this circumstance alone generally weakens the patient too much, if the constitution be not at the same time enabled to support it by a proper diet. Indeed, it is
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constantly found, that the cure of such sores goes on much more easily when the patient is kept in his usual habit of body, than when his system is much reduced by a very low allowance: nay, I have had many opportunities of observing, that ulcers even of the worst kinds, are soon brought to heal by the use of a nourishing diet alone, after they have obstinately resisted all the usual applications and remedies.

For the same reasons that a low regimen is condemned, the use of purgatives, and in general whatever tends to weaken the constitution, is improper. Nor does it ever happen, if proper attention be paid to the different circumstances we have pointed out, that internal medicines of any kind are necessary in this species of ulcer: I know that it is a frequent practice to give medicines of different kinds, particularly bark, nitre, and cooling purgative salts, in this as well as in every variety of ulcer. But in the simple purulent ulcer, of which we are now treating, I never find it necessary to employ any remedy directed to the

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system

system at large: The disorder is merely local, and local applications ought to be solely depended on for the cure. When, indeed, the matter of a sore is in too great quantity, and especially if it be thin and acrid, bark, steel, and other tonics are frequently employed with advantage: But when the local applications we have already recommended do not prove effectual in correcting this, it will commonly be found to originate from some general disease of the constitution; a different species of ulcer will be therefore produced, and other remedies will consequently be necessary.

SECTION III.

Observations on the simple vitiated Ulcer.

THE simple purulent ulcer we have described in the preceding section being the mildest, and, if the expression may be

be used, the most natural species of the disorder that can occur in a healthy body, every deviation from it might be considered as a vitiated state. But those we mean to comprehend under the denomination of Vitiated Ulcers, are such as differ from it chiefly in the appearance and nature of the discharge which they afford. All those which are distinguished by any remarkable peculiarity of the solid parts, as they require each of them a distinct and separate method of treatment, so they are allowed, as we have formerly remarked, to constitute so many distinct species of the disorder; and they will, accordingly, be all taken notice of separately.

Whereas, those which differ from the more simple ulcer, only or chiefly in the nature of the discharge, as they require all nearly the same method of cure, and as these differences are merely accidental, they have not, for these and other reasons, as we have already remarked, been allowed to have any influence in forming distinctions.

§ 1. *Of the Symptoms, Causes, and Prognosis of the simple vitiated Ulcer.*

THE most common appearances in the matter afforded by ulcers, when it deviates from the more natural state of purulent matter, are,

1. A thin, limpid, sometimes greenish discharge, termed Sanies.
2. A somewhat red-coloured, thin, and generally very acrid matter, termed Ichor. And,
3. A more viscid glutinous kind of matter, called Sordes.

This last, too, is frequently of a brownish red appearance, somewhat resembling the grounds of coffee, or grumous blood mixed with water. They are all of them much more fetid than purulent matter, and none of them are altogether free from acrimony; but that which has generally been termed Ichor, is by much the most acrid of any of them, being frequently so sharp and corrosive as to destroy large quantities of the neighbouring parts.

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In consequence of the acrimony of the different matters we have mentioned, the ulcers discharging them do not fill up with fresh granulations, but waste away more and more; and, instead of a red healthy complexion, they have either a dark brown, or sometimes a black sloughy appearance. The pain in all of them is considerable; and is generally more or less so, according as the matter afforded is more or less corrosive.

As causes of this species of ulcer may be mentioned, all such as we have taken notice of in the preceding section, namely, wounds in general, burns, bruises, and in short all those which were enumerated as causes of the simple purulent ulcer; for even that species of the disorder, however mild it may have been, if it happens to be either neglected, or to be dressed with improper irritating applications, very readily degenerates into the vitiated ulcer of which we are now speaking.

It is not improper here to observe, too, that such changes in ulcers, from the simple
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to those of a more inveterate kind, happen much more frequently in particular parts than in others : thus from the tendons and aponeurotic expansions of muscles not affording that species of serum necessary for the formation of good pus, such ulcers as are seated in these parts commonly prove much more troublesome and inveterate than those which are seated in the cellular membrane, where a plentiful secretion of a fluid proper for this purpose generally takes place.

In ulcers of the kind which we are now considering, that are merely local, and that are not connected with any disorder of the system, when they have not been of long duration, and more especially when they occur in young healthy patients, the prognosis should always be favourable. But, when the opposite circumstances take place; when the patient is very old ; the ulcer extensive, inveterate, and of long standing ; the prognostic should always be very doubtful.

§ 2. *Of the Cure of the simple vitiated Ulcer.*

WE have already remarked, that the bad qualities of the matter afforded by ulcers, proceed, in general, from some particular affection of the solids or secreting organs in the parts diseased, whereby such kinds of fluids are separated from the blood as cannot be converted into good pus. The nature of this affection, too, we have endeavoured to explain ; and, from the several arguments formerly advanced, it appears evidently to consist in different degrees of inflammation, or of increased action in the vessels of the parts diseased, occasioned by one or other of the several exciting causes which give rise to ulcers.

Independently, too, of what was formerly advanced in support of this opinion, it seems to be farther confirmed by the nature of the different remedies found to be most effectual in the cure of such disorders, which are chiefly of that kind which have evidently very powerful effects in easing pain and abating irritation.

Thus

Thus warm emollient fomentations and cataplasms, in a very short space, sometimes even in the course of twenty-four hours, will frequently not only give the patient a great deal of relief from pain, but will even produce a considerable amendment in the nature of the discharge; and, by being continued for a longer time, till the tendency to inflammation is thoroughly removed, they will, very frequently, without any farther assistance, convert the matter, however bad it may have been, into a natural and good pus.

The most proper method of proceeding, therefore, in the treatment of all such ulcers, is to foment the parts three or four times a-day, for half an hour at least each time, with an emollient decoction; and then to apply pledgits of the wax-ointment, as was formerly recommended, with warm poultices over all, to be renewed as frequently as they turn cold.

In sores of this nature, when the pain is considerable, as nothing more quickly promotes the cure of such disorders than
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the removal of pain, it frequently becomes necessary to have recourse to opiates, which, in such circumstances, are often used with much advantage : and when they are employed, they should always be given in such doses, and these should be as frequently repeated, as the violence of the pain may indicate.

The habit of body must, in the mean time, be also attended to, and particular directions given with respect to it, according to the immediate situation of the patient. Thus, when from a long continuance of an ulcer, or from any other cause, the constitution has been much reduced, we ought, by a full allowance of diet, to endeavour to repair it ; and when, on the contrary, the patient is of a full plethoric habit, and has formerly been liable to inflammatory affections, it then becomes proper to keep him rather upon a low regimen.

In ulcers of this kind, which occur in the former of these circumstances, namely, in low reduced habits, the Peruvian bark
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proves often efficacious : in such sores, indeed, it acts frequently as a very powerful remedy, and particularly in effecting a change for the better in the nature of the discharge.

The bark, however, in order to produce such an effect, requires to be given in much larger quantities than are commonly exhibited : It is seldom given in any complaint of this kind to a greater extent than three or four doses in the day, of a scruple or half a drachm each ; whereas, when any remarkable advantages are expected from it, six or eight doses of a drachm each should always be given in this space of time ; and, in such quantities, it seldom fails of proving a very effectual remedy.

It must be observed too, that, in the manner we have directed, very little more of the remedy ever becomes necessary, than what, upon the whole, is commonly exhibited in the usual way of giving it in small doses ; for with large doses, and these being frequently repeated, more real advantages are in general obtained in the course of
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of twelve or fourteen days, than are usually experienced from its being continued a great number of weeks in small doses.

In such cases of ulcers, however, as occur in inflammatory constitutions, and in plethoric habits, the bark must be used with greater caution; and, in these circumstances, indeed, it should seldom be given to any extent, till the tendency to inflammation has in a good measure disappeared.

The several circumstances in the cure which we have enumerated being all duly attended to, whilst at the same time the part affected is kept at rest and in a proper posture, it rarely or never happens that the discharge is not soon converted into good pus; and when once this is accomplished, every other appearance of the sore, in a very short time, generally changes for the better. At least this is commonly the case, unless the ulcer happens to be connected with some general disorder of the system; a circumstance we do not here suppose to occur, and which would constitute, indeed, a species of sore differ-

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rent from that which we are now considering.

As soon as the discharge is converted into a proper suppuration, the most material part of the cure is thus, in a great measure, effected: for the parts being no longer corroded by a constant immersion in an acrid matter, but, on the contrary, being covered by the most natural balsam that can be applied to them, they commonly soon put on a red healthy appearance; and new granulations being now at liberty to form, any loss of substance which occurred, comes as far as possible to be supplied, and this in a longer or shorter space of time, according to the depth and size of the ulcer, situation of the part affected, and the age and habit of the patient.

Sores of this kind being by these means reduced to the state of simple purulent ulcers, are to be treated during the remainder of the cure exactly in the manner we have directed in the preceding section: that is, with very mild dressings; at the same time that due attention is paid to the
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preservation of a proper degree of heat in the parts, together with the use of a gentle compression, from the time of the inflammatory symptoms having been thoroughly removed.

It frequently happens, however, in this as in every species of ulcer of long standing, that although the parts, by proper management, may have been brought to put on a very healthy appearance ; and although the discharge has, from a very bad sort of matter, been converted into the best kind of pus ; yet still the sore cannot be got to cicatrise, but continues to discharge as plentifully as ever.

When, in such a situation, the different directions we have given in the last section with respect to the cicatrification of sores, do not succeed, as may frequently be the case, an issue of a proper size, inserted in any convenient situation, will often contribute more towards the accomplishment of a cure, than all the applications which are generally used in such cases.

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And, indeed, in old habitual ulcers of every kind, nothing but the introduction of adequate drains will ever produce permanent cures: for although, by the use of drying astringent applications, the sores may be covered with a thin cicatrix or scarf-skin; yet, in cases of this nature, such cures are seldom of any long duration.

For, independently of the danger which arises from the practice of healing old drains before new ones are inserted in their place, any cicatrix obtained by means of astringent applications, being very weak, generally soon bursts open, in consequence of that redundancy of fluids which must always be induced in the system by the retention of that considerable quantity of serum, which for a long time the constitution had been accustomed to throw off, for a supply of pus to the ulcers.

In all such ulcers, therefore, and indeed in every species of the disorder that has been of long standing, the first part of the cure ought to consist in the introduction of an issue of such a size as may afford a quantity

tity of matter in some degree proportioned to that which the fore has generally yielded. And although the situation of such drains has commonly been chosen as near to the part affected as possible ; yet, provided the same quantity of matter be discharged, the situation of the issue is not probably of much consequence ; and therefore, that which is most convenient for the patient may be always fixed upon.

The issue having discharged for some time, and the different remedies formerly recommended being still continued, the cure of such ulcers will at last be commonly completed.

Since the first edition of this work was published, the good effects to be obtained from issues in the cure of old habitual ulcers have in various instances been experienced. In some of these, cures were obtained by issues, when every other means of relief had been found to fail ; And in others, the fores broke out again upon allowing the issues to dry up, and were

again cured by having recourse to the same means.

Various instances might likewise be given from authors, not only of the difficulty of curing habitual ulcers unless an issue be previously inserted, but of very pernicious consequences resulting from it. But as the experience of every practitioner must have furnished instances of this, we do not think it necessary to refer to books for authorities.

In sores which have not been of long duration, however extensive they may be, it would be highly improper to put the patient to the trouble of an issue for their cure. In recent ulcers, the system has not been so long accustomed to the discharge, as to induce any risk from a stop being put to it; we wish, therefore, to have it understood, that it is not in such sores they are meant to be recommended: But in ulcers of long continuance, we must again say, that a cure can never be attempted with safety, unless an issue of an adequate size be previously inserted.

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As issues of every kind are attended with some inconvenience, they seldom prove agreeable to patients; and from this consideration, practitioners are frequently induced to dispense with them: The least attention, however, must render it evident, that no consideration of this nature ought to have any influence.

It is in the species of ulcer we are now considering that the internal use of nitre has been so much recommended; but, although I have given it, in this as well as in other kinds of sores, in very considerable quantities, and with every necessary precaution, I cannot say that I ever observed any evident effects produced by it. Sores, indeed, have been cured in which nitre was used; but unless the roller and other local applications were employed at the same time, this remedy, in any of the trials I have made of it, has never of itself been able to effect a cure.

SECTION IV.

Observations on the Fungous Ulcer.

FUNGUS excrescences frequently occur in different species of ulcers; and very often increase to such a degree as to constitute sores extremely different in their appearances and effects, as well as in their treatment, from the sores which originally induced them: and this is the reason for our allotting a separate section for their consideration.

§ 1. Symptoms and Causes of the Fungous Ulcer.

By the term fungus is understood such preternatural risings of the parts in sores, as are commonly more soft and spongy than sound healthy granulations; which, though they do not in general acquire any great degree

degree of bulk, yet by very long continuance and neglect, they do, in some instances, arrive at very considerable sizes : And although, as we have observed, they are generally at first lax and soft, yet, when of long duration, they likewise, in some cases, acquire very great degrees of hardness.

The pain attending them is not commonly considerable ; though, in some instances, it is otherwise ; and the discharge afforded by them varies according to the species of ulcer they happen to be connected with.

Thus, when a hyperfarcosis, the term commonly used for such risings in sores, occurs merely from neglect in a simple purulent ulcer, the discharge frequently continues all along tolerably good ; and, on the contrary, when it is connected with an ulcer discharging any of the more acrid vitiated matters, as in some instances is the case, the discharge usually continues to be of the same nature.

With respect to the causes of the disorder ;

der ; when speaking of ~~simple~~ purulent ulcers, it was observed, that in a healthy state of body, and especially in young people, the new granulations that form in such sores are very apt to push forward too much, so as to rise above the surface of the neighbouring parts. This, by attending to the directions which were then given, may very often be effectually prevented ; but if, in such circumstances, the sore be neglected, and the parts are allowed to advance much further, the disorder of which we are now speaking comes then to take place. And if it is not attended to for yet a still longer time, as with poor people especially is frequently the case, even this the most simple species of fungus degenerates into a very troublesome disorder ; it being in this manner that the very hardest excrescences are commonly produced.

Another variety of the disorder is sometimes met with in the cure of wounds and ulcers of different kinds, from not attending to their being found at bottom before the new granulations are allowed to proceed

proceed any length. In this manner, whether from any sinus not being filled up, or from any corrupted parts, that may not have been thrown out, continuing to act as extraneous bodies, the granulations that first appeared still continue to advance; but, instead of cicatrising when they are on a level with the neighbouring sound parts, they go on rising considerably beyond them, till the disease we are now considering is of some duration.

And, when in this way a fungus has once commenced, it continues to increase from day to day, till the cause which originally produced it is discovered, and removed, either by art or nature, in consequence of a plentiful suppuration being formed below, and bursting out; which, by laying open the seat of the disorder, gives room for a proper treatment to take place.

§ 2. Of the Cure of the Fungous Ulcer.

By a proper attention to the case, and to the different causes we have mentioned, it will, in general, be easily discovered from which of the two the disease has originally proceeded: and, as soon as the cause is distinctly known, the method of cure to be pursued is just as certainly determined; which, till then, could not with propriety be undertaken, as, in the two different cases, the remedies found to be necessary are of very opposite natures.

When it is found that the fungus has been induced merely by an overgrowth of parts, and that there is no disease lurking at the bottom of the sore; when the tumor is of a considerable breadth, and especially when it does not rise to any great height; we should have recourse immediately to the use of escharotics.

Of such applications, a great variety has been recommended: by many, even the actual cautery has been proposed; and by others,

others, we are directed to remove at once all fungous parts by the scalpel.

Either of these methods would, no doubt, prove in every case very effectual, and a great deal more expeditious than any other that can be recommended: but they have such an appearance of severity, as to deter almost every one from submitting to them; especially as it is well known, that the disorder we are treating of can be just as certainly, though perhaps not so quickly, removed by means of much more gentle remedies.

Of all the artificial caustic preparations enumerated by authors, the lunar caustic is, for such purposes especially, by much the best. It acts more quickly, and does not produce more pain, than many of the milder sorts; it never fails to produce the proper effect, which is not the case with any of the others; and it is not near so apt to run and to spread over the neighbouring parts, as some of the other compound forms of caustic, which is frequently a very troublesome circumstance attending their use.

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The caustic should be liquefied; and a small brush or pencil being dipt in it, it is in this manner to be applied to such parts as are to be destroyed: And this being done either daily or every second day, the fungus will be removed in a longer or shorter time, according to the size and firmness of the tumor. A strong solution of verdigrise in water, of crude sal ammoniac, or of blue or white vitriol, being applied in a similar manner, will commonly prove effectual too, in removing such excrescences.

In the course of practice, cases occur in which some variety of such applications is found to be necessary: I have made trial of a great number; but none ever proves so generally useful, as we said above, as the lunar caustic. For purposes of this kind, I have sometimes used a strong solution of silver or of crude mercury in spirit of nitre; and the effects of it, as may readily be imagined, are always very powerful: they are nearly the same, indeed, being only somewhat more powerful than those we commonly experience from lunar caustic; this kind of caustic

stic being merely a solution of silver in the nitrous acid evaporated to dryness.

One ounce of pure quicksilver will dissolve in an ounce and a half of strong spirit of nitre; and this forms, perhaps, as strong a caustic as can be prepared. For other purposes, where milder applications of this kind are necessary, the strength of the remedy may be reduced by using a smaller proportion of mercury and a weak nitrous spirit: But for the removal of a hard callous excrescence, the strongest solution ought to be employed; it gives no more pain than those of a weaker nature, and it always proves more effectual. We may here remark, too, that a strong solution of this kind is perhaps the most effectual of any caustic application in the removal of warts of every kind, and particularly for those which originate from a venereal cause. But in using it, either for warts, or for such fungous excrescences as we are now describing, it ought never to be applied to an extensive surface at once. When the fungus is inconsiderable, a small quantity of the

the solution may be applied over the whole of it without any risk : But, in extensive affections of this nature, it answers better to apply it to a small portion of them only; and if different parts of an excrescence be touched with it daily, the whole will in general be soon removed. After the application of any of these articles, the parts should be covered with dry lint ; and not, as is commonly done, with any kind of ointment, which always tends to destroy the activity of every caustic remedy.

We have hitherto been supposing, that the surface of the fungus is of a considerable extent, and that it is not raised to any great height above the contiguous sound parts : But whenever the reverse of these circumstances takes place, that is, when there is a narrow base, and the height of the excrescence is considerable, the most expeditious and easiest method always is, to take it off by a ligature ; which being applied at its root tolerably tight, and straitened a little every day, soon destroys the circu-

circulation in the swelling so entirely, as to cause it in a short time to drop off.

When the rising is, as we have observed, narrow at the base, and especially when it is in the least pendulous, a ligature can be applied and kept on with the greatest ease; but when the tumor is broader below than above, it is not possible, without some assistance, to prevent it from slipping off. It may always, however, be certainly and very easily effected in the following manner.

A strong straight needle, fixed in a handle with an eye near to its point, being pushed through from one side of the tumor to the other at its base, and two strong waxed threads being introduced at its eye, it is to be again drawn back, leaving the threads with their ends hanging out at each side of the swelling. In this situation, a firm ligature is to be formed round one half of the tumor by the two extremities of one of the threads; and with the other two, the other half is in like manner to be comprehended; and each of them being from time to time properly tightened, both halves of

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the swelling will for the most part very soon fall off. The hint of the practice we have here recommended, was taken from the description of a curved needle of this kind, recommended by Mr Cheselden, for the extirpation, by ligature, of diseased tonsils, which, without some such contrivance, could never with propriety be attempted.

The fungus being by either of these methods removed, the sore is then to be treated in the manner we have already directed for the management of simple purulent ulcers.

The other species of fungus we have mentioned, that proceeds, as we observed, from the new granulations in ulcers not being raised on a sure foundation, by purulent matter or some other extraneous body being lodged at the bottom of the sore, is, in general, very easily distinguished from the preceding species. It rises with much greater rapidity, and is not near so firm; on the contrary, indeed, it is always more soft and flabby even than healthy granulations.

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By attending to these, and all the other circumstances of the ulcer, the cause will seldom remain long in doubt; and as soon as it is discovered, the first thing to be done, is to give free vent to the confined matter, by making a proper opening into it. After which, by taking care that the sore fills properly up from the bottom, the cure will go easily on in the ordinary way. Nor, unless when the fungus is very considerable, can there ever be any occasion for the use of escharotics; for, in such cases, the granulations are commonly so soft and spongy, as to waste away of themselves in the course of the cure, without any assistance whatever from caustics.

These are the only cases of fungus, which, in general, in local ulcers ever prove troublesome; excepting, perhaps, that which occurs as a symptom in carious ulcers; and which in its proper section will be taken notice of. It may be alledged, indeed, that the varieties we have now described may be considered as symptomatic; and for this reason, it may be said, that

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they should not be allowed to constitute distinct complaints : For the reasons we have formerly given, however, and particularly from their treatment being very different from that which is necessary in any other symptom of ulcer, it was thought proper to allot a separate section for their consideration.

SECTION V.

Observations on the Sinuous Ulcer.

§ 1. *Of the Symptoms and Causes of the Sinuous Ulcer.*

BY the term sinuous ulcer, is meant that species of sore communicating with one or more openings or cavities of various
sizes

sizes and dimensions, which are generally seated in the cellular membrane, between the common teguments and muscles, or between the interstices of the muscles themselves.

These different sinuses serving as reservoirs both for the matter formed in the body of the sore, and for that which is afforded by the sides of their own cavities, make the discharge of all such ulcers, when the matter of the sinuses is pressed into them, appear to be much more considerable than their extent of surface would give cause to expect.

A sinus, as thus described, is the most simple state of the disorder: but by long continuance, or by the use of drying astringent applications, it is liable to become hard and callous in its internal surface; and, in such a state, from its supposed resemblance to a pipe, it is termed a fistula; of which nature is the fistula in ano, a well-known and troublesome disorder.

The most frequent cause of the formation of sinuses in ulcers and abscesses, is the

want of a free vent to the discharge; which, naturally falling to the most depending situation of the part, if it does not there find an easy and ready passage by an opening being made into it, it very readily insinuates itself into the soft yielding substance of the cellular membrane, and proceeds on gradually till it somewhere or other makes an opening for itself, either upon the surface of the body, or into some of the neighbouring cavities.

Very tight bandages, too, when applied directly upon ulcers, if they are not made to act likewise upon the neighbouring sound parts, for some way both above and below the sores, are not unfrequently attended with the same effect; and should never, therefore, be applied in this manner.

In every case of recent sinus, and even, in general, in those of longer standing, when these are so far accessible as to admit of proper applications being made to them, and when the constitution in other respects is healthy, we may almost always
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venture to make a favourable prognosis. But when the complaint has been of very long continuance, and especially when the different sinuses open into any of the joints, or are beyond the reach of an operation, a cure, in such cases, becomes both very difficult and doubtful. Nor is there, indeed, any disorder that more frequently baffles the ingenuity of surgeons, than some species of this disorder, particularly the fistula in ano.

§ 2. *Of the Cure of the Sinuous Ulcer.*

IN recent affections of this nature, we are directed by all the old writers, as likewise by many of the moderns, to make use of what they call vulnerary or healing injections. And, in the more advanced states of the disorder, when by long continuance the sides of the different sinuses have become callous, escharotic injections and powders have been recommended: But none of these have ever been found to produce any permanent good effects, and

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the too frequent use of them has often rendered hard and callous such sinuses as before were of the most simple nature.

Others again have advised, in every case of this kind, especially when the complaint is in any degree of a fistulous nature, to lay the different sinuses open from one end to the other, and, by cutting out all the hardened parts, to convert the whole into one common ulcer, and to proceed afterwards with the cure in the ordinary manner.

This method will, no doubt, very frequently effect a cure; but, independently of the great pain, and very large unseemly cicatrix, which it never fails to produce, it cannot, in every case, with safety, be put in practice.

Thus, when sinuses run very far up the rectum, it can never conveniently be practised; and when, as is frequently the case, they penetrate deep, and run below either large blood-vessels, tendons, or nerves, it would never surely, in these cases, be advisable to have recourse to such treatment.

But although the practice was even altogether

together free from danger, it ought in almost every instance to be laid aside; since we can, by a much more simple and less painful operation, be always as certain of obtaining a cure, as we ever could be, either by a simple incision, or by an entire destruction of the parts.

The intention of cure in every case of sinus, is to produce a coalescence of its sides, so as to destroy any vacuity that may have been occasioned.

The most effectual means for accomplishing this, is, first to make a depending orifice for a free exit to the matter; and then, by a gentle irritation, to induce, on the internal surface of the sinus, a slight degree of inflammation, which by experience is known to be the state which proves most favourable to the production of adhesion between any two parts; so that a firm union of the sides of the sinus to one another may in due time be obtained.

Now both these intentions are fully answered by the introduction of a seton, from the orifice in the ulcer, along the course
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of the sinus, to its other extremity ; where an opening, large enough for the discharge, ought to be made in the manner we formerly directed in cases of abscess.

The cord of cotton or silk ought at first to be pretty large, more or less so according to the capacity of the sinus ; and it should be diminished gradually, as the cure advances, by taking away a thread or two from its thickness every second or third day. And at last, when the discharge is greatly lessened by the filling up of the vacuity occasioned by the sinus, the seton should be totally withdrawn ; and a bandage being applied with some tightness over the part, and being continued a sufficient length of time, a complete cure will for the most part be effected.

The first step to be taken then, in all cases of this kind, is to discover the direction in which the sinuses run ; which commonly we can easily do, either by the introduction of a probe, or by observing where the matter points on being allowed to collect for some time, and from whence
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it comes, on the part being pressed. And into every sinus that opens into the ulcer, a seton, as we have above directed, should be introduced.

This method of curing sinuses, by the use of the seton, is free from all manner of danger, and is admissible in almost every case that can occur. Even when sinuses run deep among the muscles and blood-vessels; and when it would be unsafe, therefore, to use either the scalpel or acrid injections; a seton, introduced by means of the director, as we formerly recommended in the treatment of abscesses, may be always employed with much safety and advantage.

The practice we have here recommended is seldom found to fail in any case of simple sinus; and, in general, it answers even in those which are considered as real fistulæ.

Although it would be very inconvenient in such a situation, yet I am much persuaded, from its general utility in similar cases in other parts, that the seton would prove a much more effectual remedy in cases

cases of the fistula in ano, than any other that has as yet been employed. In similar cases of this kind that occur in the perineum, I have known it used with the greatest advantage: And it is in this situation, indeed, particularly proper; as the cicatrix formed after the opening of a long sinus in the common method, with a scalpel, proves in these parts frequently more troublesome and painful to the patient, than even the original disease it was intended to remove.

The sinuses, by these means, being at last filled up, the ulcers with which they have been connected are then to be cured in the ordinary manner, as we have directed in one or other of the different sections, for the species of sore to which they may happen to belong.

This part of surgery, it may be observed, is much indebted to the ingenious Mr Pott, for the simplicity he has been in a great measure the means of introducing in the treatment of fistulous complaints in ano and in perineo. In all of which,

which, as we have already remarked, is used formerly to be, and with many indeed still is, the practice to cut out the affected parts entirely, whether they are much hardened or not: which not only occasions a great deal of unnecessary pain, but very seldom produces such an agreeable or speedy cure as is obtained by merely laying the parts open with a simple incision; and which is all that, even in the most obstinate cases, should be ever attempted. For, if a cure cannot be obtained by such an operation alone, or by the seton when it can be used, as we have lately advised, cutting out the parts never will effect it, unless they are all evidently in a very hard callous state; in which case, extirpation of the diseased parts may no doubt in some cases, be necessary. Even when a very considerable degree of hardness prevails, much advantage is often derived merely from laying the sinuses open by a simple incision along the course of each of them: The free vent which is thus given to the discharge, together with the
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new suppuration induced by the incisions, proves frequently a very certain means of removing the callosities; and this being accomplished, a complete cure is commonly obtained.

SECTION VI.

Observations on the Callous Ulcer.

§ 1. *Of the Symptoms and Causes of the Callous Ulcer.*

AN ulcer is said to be callous, when its edges, instead of contracting, and diminishing the size of the sore; keep at stand, turn ragged, and at last, by acquiring a preternatural thickness, often rise considerably above the level of the neighbouring parts: And, as it is generally from

from neglect, or improper treatment, that ulcers do turn callous, the discharge afforded by them is commonly a thin vitiated matter.

It is in this species of ulcer chiefly too, that varicose veins occur as a symptom, especially when the complaint is seated in the lower extremities. This seems to be owing, not only to the difficulty the blood, in such situations, meets with in its return to the heart; but, in a great measure, to the stricture occasioned by the callosities on the course of the different veins; a circumstance which, in extensive sores of this kind, must, no doubt, have a considerable influence.

By many, and even by late writers, this species of ulcer has been commonly termed *varicose*; from their supposing such sores to proceed from, and to be as it were fed by, matter furnished to them from these swelled veins, which frequently have the appearance of opening into them*.

This error, however, it is evident, must have

* See Turner's Art of Surgery, Vol. II. p. 3.

have proceeded from want of attention to the cause of such swellings in the veins; together with the mistaken notion which has hitherto prevailed respecting the formation of pus and other kinds of matter; which were formerly, in general, supposed to circulate with, and to be deposited from the blood; but which, in the preceding essay, we have endeavoured to demonstrate to be an opinion entirely void of any real foundation.

With respect to the causes of callosities in ulcers, it may be remarked, that they may all be reduced to the general head of neglect and improper management. When sores are injudiciously treated, either by irritating or by very relaxing applications; or when they are entirely neglected, so that fungous excrescences are either allowed to arise, or different dressings and other extraneous bodies are permitted to remain too long in their cavities; such substances come at last to act as impediments to the farther diminution or contraction of the ulcers. And, the small vessels of their
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edges being thus prevented from proceeding farther in a proper direction, are forced to push upwards, and sometimes even backwards; till, in consequence of the usual pressure from the necessary bandages, they naturally come to acquire a morbid hardness or callosity; which, as long as it is allowed to remain, very effectually prevents the accomplishment of a cure, however judiciously the sores may in other respects be treated.

§ 2. *Of the Cure of the Callous Ulcer.*

FROM the consideration of the above-mentioned cause of the disorder, the first step towards a cure, it is evident, should consist in its total removal.

Thus every improper application, which, till now, may have been used, should be immediately laid aside; and if any fungus or other extraneous body appears to be doing mischief, these and every other obstruction to a cure ought as soon as possible to be removed. This being too thoroughly

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accomplished, and the fore being brought to a clean healing condition, the different callosities are then to be destroyed; for, till they are effectually removed, it is in vain by any kind of application to expect a cure.

In very recent instances of such complaints, warm emollient cataplasms, when continued for a proper length of time, by softening the callosities, will frequently, without any other application, answer every intention of cure. But it is in the earliest periods of the disorder only that these ever prove effectual; for when it has been of long duration, so that the edges of the fore have acquired much preternatural hardness, neither the use of emollients nor of gum-plasters, as we find in such cases recommended by many authors, are ever attended with any remarkable advantages.

The only remedy then we can have recourse to, is the scalpel or caustic: And as this last, when properly managed, is equally certain with the other, it should, as the easiest method, be always employed; and,
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for reasons we have mentioned in a former section, the lunar caustic should be here likewise preferred. The solution of silver or of mercury, of which we gave a description when treating of the fungous ulcer, may be used with equal propriety here too. Either this, or the lunar caustic, should be applied every two days to the callous edges of the sores, which in this manner will be soon destroyed. By this means, together with a continuation of the poultices so long as any degree of foulness remains in the sores, they will soon be reduced to the state of simple purulent ulcers, when the treatment we have recommended for that species of sore will seldom fail in accomplishing a cure.

In the list of symptoms which we formerly enumerated, varicose veins were mentioned as one. These, it might be imagined, when the cause which produced them was removed, would likewise disappear. This, however, is very seldom the case; for blood-vessels, which have once suffered such a distention as to be deprived

entirely of their tone, do not often soon recover it. In the treatment, therefore, of this species of ulcer, it is not merely necessary to remove the cause which originally produced these swellings in the veins: some support must be afforded to the weakened parts in order to enable them the more easily to recover their usual strength.

For this purpose, nothing has hitherto proved so effectual as the laced stocking, or spiral bandage, which we have already recommended so frequently for different circumstances in the cure of sores. In order to have a proper effect, however, in every case of varix of long duration, it ought to be continued for a very considerable time: And it rarely happens, we may remark, that any instance occurs of the disorder being so bad, in which a cure may not be obtained merely by the means we have recommended; or at least, that the inconvenience produced by the swelling of the veins may not be so far palliated as to render quite unnecessary that painful operation so frequently recommended of extirpating, as in
cases

cases of aneurism, the diseased or swelled parts.

The effects of pressure in the cure of sores we have already taken different opportunities of mentioning; but they are particularly remarkable in ulcers with callous edges. In sores of this kind, this hardness or callosity of their edges, is not the only impediment to a cure: the contiguous parts are always much tumefied; an occurrence which must be entirely removed before any permanent cure can be obtained.

This swelling of the neighbouring parts originates most probably from obstructions taking place in the smaller vessels of the edges of the sores, in consequence of pressure produced by the callosities which surround them: And accordingly it will sometimes subside merely by the effects of emollient poultices in removing this hardness by which the tumefaction was induced.—But when these do not prove altogether effectual, pressure obtained by a proper and continued use of a flannel roller,

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ler, will in almost every instance complete the cure.

SECTION VII.

Observations on the Carious Ulcer.

§ 1. *Of the Symptoms and Diagnosis of the Carious Ulcer.*

BY the term Carious Ulcer, is here understood that species of the disorder only, which is connected with a local affection of a bone. For although the spina ventosa, rickets, and some other disorders of the bones, may, in particular circumstances, perhaps, come under the same denomination; yet as it is probable, that such affections of the bones as occur in these diseases, are connected with, and depend

pend upon, some general disorder of the system, and which with more propriety comes under the province of medicine than of surgery, to enter upon their consideration at present would evidently be deviating very much from our plan: All that is now intended is, to give as clear and concise a description as possible of that species of caries in which surgery is more particularly concerned, and in which, by proper attention, we often have it in our power to be of more real service, than in almost any other chronic disorder that comes under the management of a surgeon.

It may likewise be observed, that so far as those diseases of the bones above mentioned are to be considered as local affections, which, after the removal of the general diathesis which produced them, they frequently are, the different directions we are afterwards to give will be found to apply with equal propriety to them as to the most simple cases that occur.

The most clear and simple idea that can be given of a caries, is, that it is a disorder

of the bones exactly of the same nature with a sphacelus or gangrene of the soft parts; a circumstance which, we think, is very clearly demonstrated both from the symptoms, causes, and method of cure.

As the blood-vessels in bones are not near so numerous in proportion as they are in the softer parts of the body, the anastomosing of different vessels cannot occur in them so frequently; so that, when any considerable artery of a bone happens to be destroyed, the parts supplied by it naturally suffer much more than any of the softer organs would do from a similar cause.

And, as all the blood-vessels of bones are known to pass to them through their surrounding membrane the periosteum, upon which they generally run for a considerable way before penetrating deeper, it is not very uncommon for a caries to occur in a bone which has suffered no other apparent injury than that of having a very small portion of its membrane destroyed.

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We do not, however, mean to say, that a caries must always necessarily follow a destruction of a part of the periosteum; for the contrary of this is frequently known to happen: And unless the injury has been so considerable, as at the same time either to affect the structure of the bone itself, or to occasion, as we have already observed, the destruction of some principal artery, a caries will never occur merely from an abrasion of the periosteum; but whenever an accident has produced either of these effects, the other will almost constantly be found to follow.

From the first appearance of a bone after it is laid bare, unless its substance has been evidently affected, we can never at once determine precisely, whether a caries will succeed or not. In mere abrasions of the periosteum from ordinary accidents, I would, from a number of observations, conclude, that there is at least an equal chance that it will not: a short time, however, will commonly resolve the uncertainty.

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For if, at the end of the fourth day at farthest, a bone that has been denuded still retains its natural appearance, we may in general conclude, with tolerable certainty, that no carious affection is to succeed; and may accordingly proceed with safety in the treatment, as if the case were that of a simple wound only; which can never with propriety be done, whilst any uncertainty remains with respect to the state of the bone: And hence the great consequence of being able soon to determine whether a bone laid bare is to be attacked with caries or not.

For if, from want of attention, a cure should be attempted in a case where caries is to follow, and if the sore should be made to cicatrise, all the new growth would be again to destroy, much unnecessary pain would be given to the patient, and a permanent cure would be much longer protracted than if proper measures had been taken at the beginning.

In general, however, as we have already remarked, if a denuded bone is to become
carious,

carious, it usually shows itself in a very short time. By the end of the third or fourth day at farthest, the bone begins to lose its natural healthy appearance, turns first of a pale white, and then gets a slight tinge of a yellow complexion; and whenever this begins to appear, there can be no longer a doubt of what will be the consequence.

It sometimes remains, however, in this state for a good many days, and by degrees gets a more deep tallow-like appearance; in which state it commonly continues for a longer or shorter time, according to the degree of violence with which the injury has been done; and afterwards goes thro' the different stages of brown and dark, till it has acquired a black of the deepest dye, a period at which we may suppose this portion of the bone is arrived at, perhaps, the highest degree of mortification.

The discharge from ulcers of this kind, is never of the consistence of good pus: it is generally considerably thinner; and from the first appearance of a caries, it acquires

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a most disagreeable fetor, which always turns more considerable as the different stages of the disorder advance; and at last, too, it acquires a blackish hue, at the same time that it frequently becomes exceedingly acrid.

As the several degrees of blackness or mortification go on, small foramina or holes seem as it were to form in the diseased parts; and by degrees increase considerably, till even the most solid bones acquire a kind of spongy appearance. In this situation, the mortified portion generally becomes loose, and, when pressed upon, a considerable quantity of a fatty-like matter, with an intolerable fetor, can commonly be forced out from the different openings; which so taints the whole discharge from the ulcer, and gives it such a very peculiar smell, as to render it scarcely possible for any practitioner who has once known thoroughly what it is, ever to be deceived with respect to the existence of a caries. Indeed this circumstance alone affords almost as certain a distinction

tion in cases of latent caries, as any that can be pointed out.

In ulcers attended with a carious bone, the fleshy parts never have a healthy appearance; they are soft and more flabby than natural; and, instead of a florid red, they have rather a dark brown, together with somewhat of a glassy complexion.

The granulations, however, commonly advance quickly enough; and they would frequently proceed too far, if they were not prevented by art; which it is always necessary that they should be, till the diseased parts of the bone are either cast off by the efforts of nature, or are cut out by art, so as that the healing of the sore may take place with certainty from the bottom. And, when neglected for any considerable time, these soft productions in carious ulcers frequently increase so remarkably, as to form very large and troublesome excrescences.

We have hitherto been supposing, that only a portion of the substance of a bone has been affected; in which case a cure is sometimes obtained by a single lamina only casting

casting off. But the same phenomena likewise occur when the caries has been so considerable, as to affect a bone through its whole circumference. Only, in this case, the caries generally advances more quickly; and, in the treatment of it, it is often necessary that the whole substance of the bone, in the diseased part of it, should be taken out.

Such are the different appearances of caries proceeding from an external accident that has laid the bone fairly open to view: But the same kind of disease occurs frequently in a more latent manner; and, in such cases, it proves always, in every respect, a great deal more troublesome.

Ulcers of long continuance above the tibia, or any other bone not thickly covered with soft parts, merely by the matter insinuating itself to the periosteum, and there producing an inflammation and suppuration of that membrane, by which the bone itself is apt to be eroded, very often prove the origin of troublesome cariousities; which again, as long as they remain, prevent effectually

fectually the proper cure of all such sores, notwithstanding the use of every remedy that can be employed. For when, by the application of very drying astringent remedies, a cicatrix happens in such circumstances to be induced, it proves constantly a temporary cure only; for the disease, in the course of a short time, always breaks out again.

In such cases as we are describing, when the external ulceration is not attended with a great destruction of parts, so that the bone still remains with a tolerably thick covering, a caries is not always easily discovered; so that practitioners are frequently, for some time, at a loss how to proceed in the cure: With a little attention, however, and especially with the assistance of experience in former similar circumstances, a carious bone may, in general, be easily enough detected.

When by the introduction of a probe at any opening that may have been formed, if a roughness is discovered on the surface
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of the bone, the case becomes altogether evident.

Such information, however, is not always to be obtained: for frequently there is no evident opening in the surface of the fore; and, if there are any, they are often so small that no instrument proper for the purpose can get admission. And on other occasions, again, when an opening even tolerably large is met with, and when a caries does certainly exist, yet the diseased part cannot be reached with the probe on account of the obliquity or winding direction of the sinus which leads to it.

Although in such cases, however, the bone itself cannot be immediately reached; yet if sufficient attention be given to the appearance of the fore and to the nature of the discharge, we will not often be at any great loss.

If a caries of the bone does take place, any new parts which may have appeared in the fore, are commonly, as we formerly remarked, soft and flabby; and, instead of forming a regular surface, the new granulations

lations sprout up in different clusters, of the size of small nuts or the like; and, instead of a healthy red appearance, they have usually a dark-brown complexion.

These circumstances, when they take place, together with the discharge from the ulcer being thin, dark, and of a greasy appearance, and especially the peculiar and very offensive fetor which a caries always affords, point out the real state of a bone in every case of this kind, with almost as much precision as if the bone itself were exposed to view.

§ 2. *Of the Causes and Prognosis of the Carious Ulcer.*

ALL such accidents as can occasion either denudation, loss of substance, or erosion of a bone, have commonly been enumerated by authors as the causes of caries. But it is a circumstance well known to every practitioner, that the common teguments and periosteum are very frequently destroyed,

stroyed, without any carious affection ensuing: and that even a very considerable loss of substance in a bone may, and frequently does, occur, without being followed by any such appearance.

The causes, therefore, of caries may, in general, be said to be, whatever can, by erosion or otherwise, destroy the circulation in the whole or in any part of a bone.

As such, may be mentioned, wounds in general, which affect either the periosteum or bones; violent contusions, and inflammation of the periosteum, from whatever cause it may proceed, when it ends either in abscess or gangrene; the acrid matter of ulcers penetrating to and destroying the periosteum; and, lastly, the improper application of sharp acrid spirits and powders to bones merely laid bare; a practice we find recommended very universally by almost all the ancient writers on this part of surgery.

We have observed above, that loss of substance in a bone does not always produce
caries.

caries. Thus, very considerable portions of the cranium, it is well known, are frequently taken out when fractured, without any caries of the remaining part of the bone ensuing; and that the same circumstance likewise happens, in many instances, in other parts of the body, I have had various opportunities of being convinced of.

That such occurrences, however, do not so frequently take place in other bones as in those of the cranium, cannot be denied: and the reason of it very probably is, that by a greater proportion of blood-vessels being sent to the bones of the skull than to any of the long ones; any accident which might otherwise be sufficient for separating one part of a bone from another, will, by this mechanism, be prevented from effecting a stoppage of circulation in the contiguous remaining parts with so much ease as in the hard bones of the extremities, in which the blood-vessels are much more sparingly distributed: And to such a stoppage we have already endeavoured to show that every case of caries is to be attributed.

In every instance of caries, the prognosis to be formed must depend upon a variety of circumstances: The principal of which are,

The situation of the diseased parts; the nature and organisation of the affected bone; the nature and degree of the inflicting cause; the size of the caries; the age and habit of the patient.

Thus it will be readily allowed, that a caries in any of the bones of the skull, ribs, or vertebræ, by these parts being situated above or upon organs so immediately necessary for life, must be attended with more risk, than a disease, in every other respect of a similar nature, in any of the bones of the extremities.

For a similar reason, too, a caries seated near to any of the joints, from the danger of these becoming affected, is always attended with more risk than when the disease is confined to the middle of a bone.

The consistence or texture of a bone, too, has no small influence in every case of caries;

ries; exfoliations being much more tedious, in the hard and compact, than in the more soft vascular bones. Thus, although, as we have already remarked, disorders of this kind are attended with more risk on the skull than elsewhere; yet a caries of any of the bones of the cranium, if it admits of a cure at all, never proves near so tedious as when the hard substance of the humerus, femur, or tibia, is affected.

The nature of the cause which produced the disorder, has likewise a considerable effect in determining the prognosis. Thus a wound with a sharp cutting instrument, that may have destroyed not only some of the periosteum, but even part of the bone itself, does not generally produce either such a deep or extensive caries, as what commonly succeeds to violent contusions of bones, with perhaps no immediate loss of substance.

The extent of the diseased part, too, we have already observed, is a circumstance which influences the cure considerably. This is, no doubt, the case in every species

of ulcer, but it is more particularly so in all cases of caries; for it is constantly found, that much more time, in proportion, is requisite for the separation of a large piece of spoiled bone, than what in general proves sufficient for the removal of one of a less extent.

And, lastly, as in every species of sore, the patient's being young or old, healthy or otherwise, are circumstances which occasion very considerable differences in the progress of the cure. This, we may remark, is the case in every variety of ulcer; but it is particularly so in those attended with carious bones, which always render the cure of sores so extremely tedious, that few constitutions are able to support the discharge which they produce, if they have not previously been perfectly firm and healthy.

These are the leading circumstances requiring our attention, in the treatment of ulcers attended with carious bones; and it is from a due attention to all of them that a just prognosis is to be formed.

§ 3. *Of the Cure of the Carious Ulcer.*

CARIES being a disease of the same nature in the bones, as mortification is in the soft parts, no cure, it is evident, can with propriety be attempted, till the removal of all the diseased parts is accomplished.

For if, either by accident, or design, an union of the parts above such a caries should be obtained, the dead portion of the bone not having any connection with the living or sound parts, and by thus acting as an extraneous irritating body, would soon produce an abscess or collection of matter, and in this manner would force open the parts already united.

In a healthy constitution, the separation of diseased mortified parts from such as remain sound, is, in general, accomplished by a natural exertion of the system.

The course which nature follows in effecting this, seems, as we formerly remarked when treating of gangrene, to be thro' the intervention of a slight degree of in-

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flammation,

inflammation excited upon the extremities of the remaining sound parts, which forms, as it were, a boundary between these and such as are diseased.

In consequence of such an inflammation, a serous exudation from the mouths of the sound vessels is produced; a suppuration is accordingly brought about, with a consequent production of new granulations, which, together, soon effectually detach all the diseased from the living parts.

This is evidently the process, in such cases of mortification as occur in the softer parts of the body; and, with a very little attention, the same phenomena will be observed in every case of caries. Only in the latter, from there being in the bones, as we have formerly remarked, a more sparing distribution of blood vessels, and consequently not such a disposition to inflammation, the exertions of nature, for the removal of the disease, are seldom so quickly accomplished.

It is from a due attention to this process of nature, in freeing herself from such disorders,

orders, that the greatest advantages in the treatment of caries are to be obtained : And if we be directed by this in the choice and order of our applications, we may have it frequently in our power to accomplish in a few weeks, what nature, if left to herself, would require many more months to effect.

From the foregoing considerations, the principal indication, it is evident, in every case of caries, should be, by proper applications frequently reiterated, to excite, and continue as long as may be necessary, such a degree of inflammation in the adjoining sound parts of the bone, as may be requisite for the total separation of the mortified parts.

In this state of the disorder, the diseased part of the bone we suppose to be laid quite bare ; which in the case of caries, as we first described, is the case from the beginning ; and which must, in the other, be brought about, by destroying the corrupted and other parts that cover it, as soon

soon as the caries from the different symptoms is known to exist.

So far at least it must be laid open, as is necessary for getting freely at the disease of the bone in its full extent. This, by a mere incision along the course of the caries, may in general be done; but when the disease occupies any considerable extent of surface, it becomes necessary to make a crucial incision, or even to take away part of the teguments altogether. And till the disease of the bone is entirely removed, it is necessary, by a due attention from time to time, to prevent the formation of new parts, at least so far as might in any degree obstruct the separation of the caries.

Whether authors have ever had in view such an indication as the one we have mentioned, for the cure of caries, I know not: but the remedies employed, in such cases, have, in general, been very different from those which reason evidently points out, and from those means which have been used with much success by many modern practitioners.

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The directions given by all the older writers on this subject, and which are still attended to by some of the moderns, are, in every case of caries, or even only of a denuded bone, to apply immediately, to the bone itself, powders and tinctures of aloes, euphorbium, myrrh, and other warm gums. This, it is probable, they were originally led into, with a view to correct the great degree of fetor and putrefaction that, in cases of carious bones, always takes place: and from custom only the practice has been continued, without any other satisfactory reason; for the only effects which these applications can ever produce, farther than that of correcting the smell, is to irritate and inflame the soft parts of the sore, without having the least influence on the more material disease of the bone.

For, when the caries is of any considerable depth, such substances can never penetrate to or affect the sound parts of the bone, where alone, by the irritation they would

would occasion, some benefit might be expected from them.

And again, when no caries or affection of this nature has appeared, such applications to bones merely denuded of their periosteum, can never, in any respect, be necessary; and may, on the contrary, be frequently a means of inducing a real caries, the very disorder they were intended to prevent.

Another remedy which we find frequently recommended by almost every author, in the more advanced stages of caries especially, is the actual cautery. This, however, independently of the many objections made to it by patients, from the pain and seeming cruelty attending it; is evidently, from its nature, a very injudicious application in all such disorders: and although many have no doubt recovered when the cautery has been made use of, there can be little doubt, but that the same complaints would have been more quickly removed, although no such remedy had been employed; for, in whatever way we
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suppose it to be applied, its effects must evidently be pernicious.

If the cautery be applied in such a manner as entirely to destroy the diseased parts of the bone, as is commonly recommended, the sound parts underneath, from the degree of heat necessary for that purpose, must undoubtedly always suffer so much, as to be soon rendered equally carious with those intended to be removed.

And, on the contrary, when it is used in a more sparing manner, the diseased part of the bone will not be removed, whilst at the same time there will be a considerable risk incurred of retarding the natural exertion of the system for the removal of the disease: for even a very moderate heat will effect the destruction of such granulations as nature may for this purpose have already formed; and the just degree of heat, it may be remarked, necessary for destroying the morbid, without affecting the sound parts, it is scarcely possible to determine.

When, for any particular reason, the
actual

actual cautery may not be judged proper, it has been recommended, by the same authors, to make use of different artificial caustic preparations; and by others, it is advised, as the shortest process, to strike off at once all the diseased parts with a chisel and mallet.

But the objections to the use of the cautery, which we have already stated, hold equally strong with respect to these: so that, in every case of caries, every application of such a precarious nature should be entirely laid aside; especially as we have it in our power to accomplish the same indication in a much more safe and certain manner.

For the purpose of exciting a necessary degree of inflammation, the most effectual and safest method, and which, in slight cases of caries, proves always sufficient, is to make a number of small perforations all over the surface of the diseased bone, to such a depth as to give the patient a very little pain, and no farther.

This operation being, in different parts,
renewed

renewed every third or fourth day, the diseased portion of the bone, in the course of a short time, not only loses the cohesion of its own parts, but a gentle inflammation being, by the same means, raised and kept up till a free suppuration is produced, the whole mortified mass is generally, in a short time thereafter, entirely thrown off.

These perforations are very conveniently and effectually made by a pin or perforator, such as is used for fixing the head of the trepan; which being fixed in the handle of that instrument, not the one in common use, but that which resembles the tool made use of by coopers for perforating casks, it is thereby wrought with a great deal of ease and expedition.

Although the operation, as now described, in general answers very effectually in slight cases of caries, which are not of great extent, and which do not penetrate deeper than the first or second lamella of a bone; yet when the disease is very extensive, and especially when it goes deep into the substance of a bone, it shortens the
process

process considerably, if, instead of the perforator, a very small head of a trepan be employed.

This instrument being applied at proper distances over the surface of the caries, and being carried just as deep as to give the patient a very little pain, as we formerly directed, the production of that degree of inflammation which we have shown to be so necessary in all such cases is thus very considerably promoted. And at the same time, by converting, as it were, a very large caries into so many smaller diseased parts, their separation from the sound bone below comes to be much more easily affected, than if the whole surface had still remained in one continued piece.

As soon as any of the parts loosen at the edges, their final separation may be always greatly hastened, by daily insinuating below them the end of a common spatula or levator, so as to press their edges a very little upwards.

The head of a common trepan is frequently made use of for taking out a piece
entirely

entirely when bones happen to be carious through the whole substance of their different lamellæ; but, in the state of the disease, of which we are now speaking, the caries is not supposed to have advanced so far, and consequently such a practice cannot with propriety be recommended.

After the use of either of the above-mentioned instruments, the ulcer is to be dressed in the usual manner. Only, as long as any of the carious bone remains, the putrescency and fetor of the matter are commonly so considerable, that it becomes necessary to employ some remedies merely with a view to correct it. For which purpose, a strong decoction of Jesuit's bark and walnut-tree leaves is frequently used with advantage; and a solution of camphor in weak brandy is also an application by which this fetor of morbid bones is very effectually corrected. The carious part of each bone should be daily dressed with pieces of soft lint soaked in either of these, whilst the rest of the sore is treated

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in the manner we have directed for cases of simple purulent ulcers.

This putrescent state of the discharge afforded by carious ulcers is likewise much corrected by the application of lime-water: If the fores be daily moistened with soft cloths dipt in it, the matter seldom becomes very offensive; and as this remedy seems to have some influence in destroying the cohesion of osseous matter, it ought never to be omitted in any case of this kind. Since I first employed lime-water in ulcers attended with carious bones, I have met with different instances of exfoliations being much promoted by it.

As soon as the carious parts are all entirely removed, the whole being then in the state of a simple purulent sore, it ought to be treated accordingly: For, although we are particularly directed by authors in general, never, in any case of caries, or of denuded bone, to make use of ointments, or of any kind of greasy application; yet, as there was never any just reason given for such a prohibition, I long ago made trial
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of applications of this kind in cases of caries; and, no inconvenience arising from the practice, I have since that time been in the daily custom of applying them just as freely to bones as to other parts.

Of the great variety of books I have had occasion to consult upon this subject, none have afforded me more satisfaction than a treatise on carious bones, by the late celebrated Dr. Monro; and I am happy to find, that the practice we have ventured to recommend is supported by the authority of such an eminent practitioner; who, after speaking of the application of unctuous medicines to bones, not only admits of it as safe, but recommends the practice as exceedingly useful; and says, “I can now, after a great many trials, assure you, that no medicines so effectually *prevent the corruption* of bones laid bare, and *assist* to cover them so soon with flesh, as ointments*.”

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* In the same ingenious Dissertation may be seen a particular account of the several species of caries; with a list of authors in different ages, from Hippocrates down-

We have hitherto been supposing, as was already observed, that the disease does not penetrate far into the substance of a bone: but when this is found to be the case, and a considerable portion, perhaps, of its whole circumference is affected; or when the disease extends even round the whole bone, which in many instances is the case; the shortest process then is, to take out at once all the diseased parts, either with the head of a trepan frequently applied, or by means of a small spring-saw.

Many inventions have been proposed for cutting out portions of carious bones which lie deep: With a view to protect the contiguous parts from being injured by the saw, it has been advised to cover them with thin plates of steel; and saws of various forms have been supposed to be necessary for dividing the bone.

Almost every part of surgery is already too much loaded with machinery; but
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downwards, who have wrote upon it, with the several methods of cure proposed by each of them. Vid. *Monro's Works*, 4to. Edin. 1781, p. 283, &c.

no operation with which we are acquainted, seems to require less aid from new instruments than the removal of a portion of a carious bone. In whatever part of the body the disease is seated, the teguments and muscles which cover the caries should be freely divided: and, when the bones of any of the extremities are affected, if this be done to a proper extent, so as to admit of a piece of firm leather being inserted below the bone, for the purpose of protecting the soft parts on the opposite side of the limb, a common straight saw will answer, in almost every case, better than any other instrument. But when the bone lies very deep, a small spring-saw of a circular form may be employed for dividing such parts of it as cannot be easily reached by the common saw.

Thus either by the use of the trepan, or by a saw, any portion of a diseased bone may be removed; a practice which may frequently be employed to much advantage in the skull, in the bones of the hands and feet, as also in those of the legs and

arms, when the caries does not run into the necks and heads of the bones, so as to affect the joints: In which event, if an anchylosis does not ensue, or if nature does not by some means or other effect a cure, amputation of the limb must almost always be had recourse to at last; a caries of the extremities of large bones being one of the many complaints for which art has not as yet discovered a remedy.

But, whenever a caries is confined to the middle of any of the bones of the extremities, excepting, perhaps, in the thigh, where the thickness of parts is very considerable, amputation of the member should never be advised for it: for, with a little patience and attention, if the patient's health is not much injured, nature may, in general, be so far assisted by removing the diseased parts, that a complete cure may at last be most frequently obtained. And in no case whatever ought we to despair, when the carious part can, with safety, be removed: For, however extensive the disease may be, if we can properly
accomplish

accomplish its removal, nature will seldom fail on her part, in filling up the vacancy; there being many instances to be met with, in different chirurgical publications, of even whole bones being regenerated.

We have observed above, that in carious affections of the larger joints, amputation of the diseased limb is almost the only remedy to be depended on. It has, however, been proposed, and has even been attempted, to save limbs affected in this manner, by cutting out the ends of the carious bones. Mr Park, a very ingenious surgeon of Liverpool, has published a treatise upon this subject, in which he gives the history of a diseased knee-joint where this operation succeeded. Although much merit, however, is due to whoever makes any probable attempt for saving limbs which otherwise would be amputated, and although the public is much indebted to Mr Park for the trouble he has taken in promoting the success of the operation we have now mentioned, yet, from various circumstances, there is much reason to

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think,

think, that it will never be found to be of much general utility: Independent of other objections which occur to it, the risk which attends it is evidently much greater than what commonly results from the amputation of limbs: the extent of sore induced by it is greater; the suppuration is of course more plentiful; and the matter is not so freely discharged. We do not here, however, think it necessary to enter more fully into the discussion of this point, as we shall have occasion to treat more particularly of it in another work in which we are at present engaged.

During the treatment of a caries, it must be understood that the same attention is requisite to the patient's habit of body, diet, and regimen in general, as we have recommended in other species of ulcers.

Thus, if he is of a full inflammatory constitution, all heating and very nourishing articles of diet should be abstained from; and if, on the contrary, the system is low and emaciated, as from the long continuance of such disorders is most frequently
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the case, a nourishing generous regimen should always be allowed. In such cases, too, as tonic remedies are much wanted, Jesuit's bark is often found to be very serviceable, and it should always be used in considerable quantities.

The bark is almost the only medicine which, in cases of caries, should ever be given internally: but in some instances the soft parts which cover a carious bone, become so swelled and painful, that opiates are found to be necessary. And as it appears, that in such cases the pain proceeds in a great measure from the distention of the periosteum, in consequence of the bone becoming enlarged, I have frequently been induced to try the effects of slight scarifications, or of bleeding with leeches directly on the pained parts; by which means relief is frequently obtained when it cannot be procured by any other means. I may here remark, too, that in every species of ulcer, attended with much pain, leeches applied either upon the edges of the sores, or directly upon the affected parts, are often

often attended with the best effects, inso-much that I am now in the daily habit of using them whenever a sore becomes so inflamed and painful as to resist the influence of poultices and the other means we have recommended.

In every ulcer of this kind, as soon as the diseased part of the bone is extracted, the sore which remains is to be treated in the manner we have already directed for the management of that species of ulcer, to which, at the time, it may appear to belong.

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SECTION VIII.

Observations on the Cancerous Ulcer.

§ 1. *Of the Symptoms and Diagnosis of the Cancerous Ulcer.*

CANCERS have been generally divided into occult and open. By the former are meant such hard scirrhus swellings as are attended with frequent shooting pains, and which at last generally terminate in the latter.

By the open cancerous ulcer, we understand that species of sore, which commonly succeeds to hard swellings of the glands; although, in some instances, it occurs without any previous hardness. The edges

edges of the ulcer are hard, ragged, and unequal, very painful, and reversed in different ways, being sometimes turned upwards and backwards, and on other occasions inwards. The whole surface of the sore is commonly very unequal: in some parts there are considerable risings, whilst in others there are deep excavations. The discharge for the most part is a thin, dark-coloured, fetid ichor; and is often possessed of such a degree of acrimony as to excoriate, and even to destroy, the neighbouring parts. In the more advanced stages of the disease, too, by the erosion of blood-vessels which occurs, considerable quantities of pure blood are sometimes discharged. Patients labouring under real cancerous affections, universally complain of what they term a burning heat over the whole ulcerated surface; which, in general, it may be remarked, is the most tormenting symptom that attends the disorder; and those shooting lancinating pains, which were very distressing even in the more occult

cult state of the complaint, become now a great deal more so.

These are the most frequent symptoms which attend an ulcerated cancer; but the appearances of such sores are so various, that it is almost impossible in any description to comprehend every one. When two, three, or more, however, of those we have enumerated, concur together in the same ulcer, we may always be pretty certain of its being of the cancerous kind.

The situation too of such sores, affords some assistance in the diagnosis: for tho' cancers do no doubt occur in every part of the body, yet by far the greatest proportion happen, either evidently in the substance of one or more glands, or in those situations where glands are known to be most numerous. Thus six times the number of cancerous affections, we imagine, occur in the lips and in the breasts of women, than in all the rest of the body besides.

§ 2. *Of the Causes of Cancerous Disorders.*

VARIOUS circumstances have been mentioned by authors as tending to produce cancer, and an equal number of remedies have been recommended for the cure of it: But the little success which still attends our treatment of the disease, shows evidently, that the ideas which have been adopted, and the remedies proposed, have been more founded on theory alone than on practice and observation; for there is no disease to which the human frame is liable, that has baffled the power of art more than that which we are now considering.

Although a thorough acquaintance with the theory of the disorder might probably throw some light upon the method of cure; yet as any thing that has hitherto been offered, or perhaps as yet discovered upon this subject, seems to be merely speculative, and not supported by experience, any account we could give of it here, would not prove either entertaining or instructive. Before going farther, however, it would seem

seem to be of consequence, to examine with accuracy the different opinions of practitioners, with respect to cancers being a general disorder of the system, or merely a local affection.

This is a point, we may remark, of much importance in practice: for if it were once established, that cancers are originally local affections only, no objection could then be made to their cure by extirpation, as at present there is by many, who contend, that cancers, in every instance, proceed originally from some disorder in the general system; and consequently, that their removal can never have any other effect than to make the disease again break out in the same or in some other part of the body. And this they are much confirmed in, from attending to the little success which is commonly derived from the extirpation of cancers; the disorder, as is acknowledged, generally returning, in by far the greatest proportion of all that are cut.

If this argument were founded in fact, it would no doubt merit some attention; though

though even in this case it ought not to be considered as conclusive against the operation, as will hereafter more evidently appear. It will soon, however, be demonstrated, and to many indeed is already known, that a much greater proportion than what we have mentioned, recover and do well after the extirpation of cancers; and it is probably the fault of surgeons, or of patients, only, who generally delay the operation too long, that the number of those who recover is not much larger than hitherto it has ever been.

It is of the more importance to have the point in question determined, as the only account of the success from extirpation, which, till lately, has appeared in this country, gives so bad a prospect of recovery, that I make no doubt of its having been the means of deterring many patients from undergoing a timely operation; which for cancerous complaints, is the only remedy to be depended on with which we are as yet acquainted.

It is very probable, too, that the same publica-

publication, as coming from great authority; has had no inconsiderable influence even with practitioners, in making them much more backward in undertaking the extirpation of cancers, than they otherwise probably would have been.

The publication alluded to, is that of the late justly esteemed Dr ALEX. MONRO, in Vol. V. of Edinburgh Medical Essays; where the Doctor says, "Of near
" sixty cancers which I have been present
" at the extirpation of, only four patients
" remained free of the disease at the end
" of two years: three of these lucky people
" had occult cancers in the breast, and
" the fourth had an ulcerated cancer on
" the lip."

The Doctor likewise observes, that of the few he had an opportunity of seeing the disease relapse in, it was always more violent, and made a quicker progress, than it commonly did in others on whom no operation had been performed. He therefore proposes by way of question, "Whether
" ought cancerous tumors to be ex-
U " tirpated,

“tirpated, or ought the palliative method
“only to be followed when they cannot be
“resolved?” and upon the whole, he concludes against their extirpation, except in such as are of the occult kind, in young healthy people, and that have been occasioned by bruises or some other external causes. In all other cases, the doctor observes, it should be the patient’s earnest intreaty only, after the danger of a relapse has been explained, that should make a surgeon undertake the operation.

That Dr Monro, from observing the disease to return so very frequently, should be of this opinion, is not in the least surprising: and if no better success should, in general, be found to attend the extirpation of cancers, it would no doubt be an objection to the practice; and this especially, if all the cases which relapse should be found to be attended with more inveterate and more painful symptoms, than they either were previous to the operation, or than they probably ever would have been if the tumors had not been extirpated.

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But the experience of many practitioners since Dr Monro's publication, has been attended with much greater success; and one late publication upon the subject, of which we shall afterwards take notice, puts it beyond a doubt, that a much greater proportion have recovered from cancers by means of extirpation, than of those which were treated in the same manner in the course of his experience. It will not therefore appear to be improper, to attempt to discover the reason of the Professor's great want of success in such cases, in comparison with what others have met with: and this, it is presumed, will not be difficult to do.

It may, I think, be considered as certain, that the sooner cancerous cases are operated upon after their appearance, the greater is the chance of the extirpation's proving effectual, and vice versa. Now, it is exceedingly probable, that the high rank which Dr Monro bore in his profession, both as an anatomist and surgeon, would be the means of his being applied to for

more bad and old cases of cancer, as well as of other complaints, than perhaps any other practitioner of his time. Patients in the country, with slight cases of cancer, have them generally taken off by their own surgeons: but whenever they become of a more inveterate nature, by long standing or otherwise, patients always resort to a town; to the capital, when they can conveniently do so; and there the most eminent in his profession is naturally applied to. This being the case, it is not surprising that very little success attended many of the operations performed in such cancerous cases as occurred to Dr Monro. From the cause we have mentioned, a great proportion of these would be of the worst kind; so that we need not wonder either at the bad success of any operations which were advised, or at the opinion which the Doctor afterwards adopted on the subject.

Such unfavourable cases as those we have represented, it is probable, for the reasons alledged, would most frequently occur

occur in Dr Monro's private practice; and in his attendance on the infirmary, he would, in general, meet with very similar ones. For, in every hospital, it is commonly the worst cases chiefly that are to be met with; as, before application is made there, private surgeons are always consulted, who, when an operation is to take place, if the case does not appear to be desperate, and if any reputation is likely to be got from it, generally retain the patient under their own management. And, on the contrary, when the disease is evidently of an inveterate nature, and when an operation therefore would probably be attended with much risk, the patient is always recommended to a public hospital. So that no fair judgment, from the result of such experience, in cancerous cases especially, can ever be formed, unless at the same time these different circumstances be properly attended to, and due allowance be made for them.

This, in my opinion, is the only way in which the great want of success which at-

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tended the extirpation of cancers in the course of Dr Monro's experience, can be properly accounted for; and it explains it, I think, in a very satisfactory manner: so that all the conclusion which can be drawn from this part of the above-mentioned paper is, that there is very little chance of success from extirpation in the more advanced states of cancer; a circumstance which ought, therefore, to make us have recourse to that operation in the earliest stages of the disease, when in general there would not, probably, be much chance of its frequently failing.

Such expectations will probably, by many, be considered as by much too sanguine; and they no doubt would be so, if the success which in general attends the operation, was all that could be attained: but its proving, for the most part, so unsuccessful, should by no means be imputed either to the nature of the disease, or to the fault of the remedy; but entirely to its being, in by much the greatest number of cases, delayed too long, till the system

stem has become so much infected, that we should rather wonder at the operation's succeeding so frequently, as it is, even in the general course of practice, found to do.

In confirmation of the opinion we have endeavoured to support, it is not thought improper here to introduce a very short abstract from a late publication on cancers formerly alluded to, by the late Mr James Hill, an eminent surgeon in Dumfries, who, in the course of a very extensive practice, had more experience in cancerous cases than often falls to the share of one man : So that to such as have not yet perused Mr Hill's book, it will not probably appear to be superfluous that we should insert here a short extract from his observations on these complaints.

In the year 1772, the date of this publication, Mr Hill had extirpated from different parts of the body, eighty-eight genuine cancers, which were all ulcerated except four ; and all the patients, except two, recovered of the operation.

Of the first forty-five cases, only one proved unsuccessful; in three more, the cancer broke out again in different parts; and in a fifth, there were threatenings of some tumors at a distance from the original disease. These tumors, however, did not appear till three years after the operation, and the woman was carried off by a fever before they had made any progress. All the rest of the forty-five continued well as long as they lived; or are so, says Mr Hill, at this day. One of them survived the operation above thirty years; and fifteen were then alive, although the last of them was cured in March 1761.

Of the next thirty-three, one lived only four months; and in five more the cancer broke out afresh, after having been once healed. The reason why, out of forty-five cases, only four or five proved unsuccessful, and six out of thirty-three, was as follows.

“The extraordinary success I met with,” continues our author, “made cancerous patients resort to me from all corners of the
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the country, several of whom, after delaying till there was little probability of a cure by extirpation or any other means, forced me to perform the operation contrary both to my judgment and inclination."

Upon a survey in April 1764, made with a view to publication, the numbers stood thus: Total cured of different ages from eighty downwards, sixty-three; of whom there were then living in all thirty-nine. In twenty-eight of that number the operation had been performed more than two years before, and in eleven it had been done in the course of the two last years.

So that, upon the whole, after a course of thirty years practice, thirty-nine of sixty-three patients were alive and sound; which gives Mr Hill occasion to observe, that the different patients lived as long after the extirpation of the cancers, as, according to the bills of mortality, they would have done, had they never had any cancers, or undergone any operation.

The remaining twenty-five, which completes

pletes the eighty-eight, were cured since the year 1764. Twenty-two of these had been cured, at least, two years; and some of them, it may be remarked, were seventy years, and one ninety years old.

In the year 1770, the sum of the whole stood thus. Of eighty-eight cancers, extirpated at least two years before; not cured, two; broke out afresh, nine; threatened with a relapse, one; in all twelve, which is less than a seventh part of the whole number. At that time there were about forty patients alive and sound, whose cancers had been extirpated above two years before.

I have been the more particular in giving this account of Mr Hill's success in cancerous cases, as it is the latest, and perhaps the most considerable, even in point of number, that the public was ever favoured with: and I am the more readily induced to it, from having been present at a considerable number of the operations; and from knowing that no fallacy or mistake could occur in the relation, Mr Hill having

having been so exact, as to keep a register of every case of much importance that came under his management.

From these and many other authenticated facts, which if necessary might be adduced, of the success attending the extirpation of cancers, there is, it is presumed, very great reason for considering this disease, in general, as a local complaint, not originally connected with any disorder of the system; and that a general cancerous taint seldom, or perhaps never, occurs, but in consequence of the cancerous virus being absorbed into the constitution from some local affection. This, in every case of real cancer, or rather in such scirrhotities as from their nature are known generally to terminate in cancer, should certainly determine us to have recourse to extirpation as early as possible; and if this was done soon after the appearance of such affections, or before the formation of matter takes place, their return, as was already observed, would probably be a very rare occurrence.

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The particular nature of the cancerous virus, I do not pretend to know ; nor will it perhaps be ever discovered : but it is not unreasonable to suppose, that external accidents merely may produce such an effect upon particular parts, as to induce the formation of a matter, even as acrid as that of cancers appears to be.

Thus we have daily instances in which vitiated fores produce very acrid and even corrosive matters, which, from what we have already remarked in some of the preceding sections, could not probably have existed previously in the blood ; And, if that is the case, why may not some peculiar affection of a part contribute to the formation of a cancerous matter ? The one may be conceived, *à priori*, just as probably to occur as the other ; and it does, we apprehend, as certainly happen.

The ordinary situation of cancers, too, may in some measure account for the discharge afforded by them being even of a more acrid and virulent nature, than that of any other kind of ulcers. For as they are in
general

general seated in the glands, which are known, even in much more simple affections, never to produce good matter, it is not at all improbable, but, by some peculiar irritation applied to a gland, such a disposition in it may be induced, as to cause the formation of the worst and most inveterate of all matters, namely, the cancerous: Which being allowed to remain, and absorption to take place, the whole system comes, in course of time, to be as it were saturated with it; and, thus a general affection, or what may be termed the Cancerous Diathesis, is at length produced, from what at first was only a local ulcer.

We have thus endeavoured to show, that, by an external accident merely, cancer may be produced, without having recourse to the supposition of any internal affection. But, say those who assert that the latter in such cases always takes place, "Although external violence does sometimes seemingly end in cancer; yet that disorder would never be produced in this manner, unless a predisposition to such
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complaints subsisted in the habit at the same time; and besides, although cancers do, from that circumstance, on some occasions, succeed to external accidents, yet by far the greatest number of cancerous disorders occur without the intervention of any seeming violence whatever."

That this is the case, will not by any practitioner be denied: but it may, however, be explained upon very different principles from what it commonly has been; and in a manner, too, that will rather tend to confirm the opinion of cancers proceeding, in general, from a local affection.

In by much the greatest number of cancerous cases, as we have already observed, the glands appear evidently to be the seat of the disease: which renders it probable, that, in all, they are the parts originally affected; and that the neighbouring soft parts come only to suffer in consequence of their vicinity to these: or perhaps, in some few cases, cancerous ulcers may break out in parts not glandular,
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from the whole system being much infected by the absorption of diseased matter from the long continuance of a cancerous gland in any one part.

This being the case, we may very easily conceive how single glands may frequently become affected, without any evident external cause intervening: for the circulation in the glands, being carried on by a set of vessels much more minute than those with which other parts of the body are supplied, obstructions will much more readily and easily occur in them than in other parts; and a gland being once obstructed, the stimulus and irritation thereby occasioned, may, it is probable, have nearly the same effects, and be attended with the same consequences, as are commonly experienced from a blow or a bruise.

In this manner, too, may be accounted for, without having recourse to any peculiar cancerous disposition in the system, all those cases of cancer that occur from the improper management of imposthumes in the

the breasts of nurses and of lying-in women; as likewise those which so frequently happen to women about that period at which the menses leave them; and also such as sometimes succeed to fevers and other disorders, and of which they seem, as it were, to be the terminations.

In every affection originating from any of these causes, there is always a determination of blood, or of some other fluid, to the affected part: which, when it happens to be the cellular substance, an abscess is produced; when to the pleura, to the membranes of the eye, or any such parts as from their firmness of texture do not favour the extravasation of fluids, violent inflammations are the consequence; and, when the substance of a gland happens to be the part a determination is made to, it being neither, as is found from experience, so proper as the cellular membrane for the formation of pus, nor from its softness so susceptible of inflammation as a membrane, an indolent hard swelling called Scirrhus, comes, merely by the ob-
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struction and distention of its different vessels, very naturally to be produced. And a tumor of this kind having once taken place, it generally remains for some time in its original indolent state, till by increase of bulk, or perhaps from external violence, an irritation sufficient to excite some considerable degree of inflammation is applied; which, from the nature of the affected part, not being able to produce suppuration, generally at last terminates in what we call Cancer, as in other soft parts of the body it would in gangrene, if not previously resolved or brought to suppuration.

This objection, therefore, of cancers appearing more frequently without than with the intervention of any external accident, does not, when properly examined into, appear to be of any importance: and from the whole of what has been said, this conclusion, I think, may be drawn, That cancers, in very few instances, perhaps in none, ever arise from a general affection of the system; but, on the contrary, are, at

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their first appearance, almost always local affections only.

Such a conclusion, were we better acquainted with the nature of the disorder than as yet we are, would, it is probable, appear to be founded in fact. The reasons for adopting it appear to be stronger than any that have been adduced in support of the contrary opinion : And, at any rate, its being admitted can never prove so detrimental to mankind, as if the contrary opinion was universally to prevail ; which, by having the effect of preventing patients with cancerous disorders from having recourse to extirpation, would, as long as it prevailed, be always the means of their neglecting the only remedy which, so far as we know, ought ever to be trusted.

With respect to that circumstance, taken notice of in the paper lately quoted from Dr Monro, of cancerous disorders being always more violent and making a quicker progress upon returning after extirpation, than in patients on whom no operation had
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been performed, this may in some instances be the case; but I know from experience, that it is not always so: and although it should in reality be found to be so on many occasions, yet still it is no valid objection to the practice of extirpation; and would appear only to be an additional reason for having recourse to the operation at an early period of the disease, in order to guard as much as possible against the possibility of a return.

§ 3. *Of the Treatment of Cancerous Disorders.*

FROM all that has been hitherto said, it is evident, that very little is to be expected in the treatment of cancerous disorders from internal medicines: Nor are external applications, farther than with a view to palliate particular symptoms, ever to be depended on.

A great many remedies have at different times been recommended to the public as cures for cancer: but none, it is probable, was ever more depended on than cicuta; a remedy, however, which, in this coun-

try, has by no means answered the expectations that were formed of it.

Its want of efficacy, indeed, has now proved so universal, that there seems little occasion here to say any thing with respect to it: I shall only just observe, therefore, that although, in a great number of instances, I have known it exhibited with all the attention to its preparation that could possibly be given; yet, in real cancers, I never knew it, nor indeed any other remedy, produce a cure.

In simple cases of indurated glands, I have frequently, indeed, known the use of cicuta attended with very good effects; and in the advanced stages of cancer, when excision was determined against, I have, on different occasions, seen it useful, both by relieving pain, and by procuring from the fores a better and less acrid discharge than could otherwise be obtained. But whenever there is no valid objection to it, the extirpation of a cancer, as being the most certain remedy, is that which we should

should have recourse to as soon almost as the disease is discovered.

With respect to the mode of operating in extirpating cancerous affections, very full information may be obtained from the several systematic writers on surgery: it may not be improper, however, in this place, to introduce a few general observations on the subject. And,

1. The removal of cancerous disorders, even in the slightest and most trivial cases, should be always effected with the scalpel in preference to caustic; the use of which, though formerly much recommended by some authors, and still by some practitioners adhered to, ought, for very obvious reasons, to be entirely laid aside.

The irritation generally occasioned by every application of the caustic kind, together with the pain and inflammation which commonly ensue, are, in cancerous cases especially, very strong objections against their ever being used. Plunket's remedy, which is evidently of a caustic nature, and which we have much reason to think

consists chiefly of arsenic, has, no doubt, like every other medical secret, been greatly extolled; but it is not probable, if the different cases it has been used in were all fairly examined into, that it would be found to have ever produced any advantages which might not more speedily, and with more certainty, have been obtained from the scalpel.

2. In whatever part of the body the disorder is situated, every part that has the least appearance of disease should be always taken off; and if, even in the course of the subsequent dressings, any cancerous portions may appear to have been left, these should also be directly extirpated, otherwise the disorder will just as certainly return as if no part of it had been removed; and, from want of proper attention to this circumstance, the want of success in this operation, I have no doubt, may, on many occasions, have arisen. Even every indurated gland which appears in the neighbourhood of a cancerous sore, should just as certainly be taken away as
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the ulcer itself; for if it be allowed to remain, there will seldom be much chance of success from the operation.

When the complaint is seated in the breast, although perhaps part of the mamma only may be affected, the whole of it should be always taken off: for leaving part of it is not only attended with no advantage, but proves afterwards, as I have often seen, very inconvenient to the patient.

Although it is always proper, however, to extirpate every part that is really diseased, none of the external teguments should be ever unnecessarily destroyed, nor should more of them be taken away than is altogether requisite: for the smaller the cicatrix that remains after the part is cured, the less will be the consequent irritation; and perhaps from this circumstance, too, the chance of the disease returning may be in some measure lessened.

At least, in the Infirmary of this place, much greater success has of late attended the extirpation of cancerous lips, than was

ever formerly experienced; and the only evident reason for it is, that during that period, in the greatest number of cases, the operation has been performed in the manner commonly practised for the cure of the hare-lip. Whereby not only a very narrow cicatrix is left, but the deformity attending it is very inconsiderable: and another very agreeable circumstance to the patient, is, that he can always retain his spittle, or any other liquid, just as well as before the operation; which never can be the case when any considerable portion of the under-lip has been extirpated in the ordinary manner.

It is proper in this place to observe, too, that very extensive cancers in these parts admit of being treated in this manner; for the lip being composed of parts which yield very considerably, it cannot, but from experience, be imagined, how far they may be brought to stretch. In some instances, where more than the half of the under-lip was taken away, I have brought
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the remaining parts to stretch so far, as to admit of a cure being effected in the hare-lip form, and with very little deformity being produced. And, in the same manner, in cancers of the mamma, when the external teguments are not wholly diseased, so much of them may, in general, be preserved, as will be sufficient for covering a great part of the wound occasioned by the operation; a circumstance which always renders the cure both more quick and more certain than it otherwise would be.

When the skin and teguments which have been preserved, can be retained in their situation by the proper application either of the uniting bandage, or of pieces of adhesive plaster, it ought always to be done; but in general it answers better to secure any loose portions of the parts which have been divided, by means either of the interrupted or twisted futures. The difference of pain produced by this method is inconsiderable; and we are always more certain of securing the skin by ligatures, than by any other means.

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In the ordinary method of extirpating cancerous breasts, a very extensive sore is always left: by the retraction of the divided skin it frequently appears to be at least twice the size of the diameter of the tumor newly removed; by this means a very copious suppuration takes place, which in weakly constitutions proves always very prejudicial; a cure is tedious in accomplishing; and the cicatrix which remains being of a considerable extent, the parts are afterwards very liable to injuries. Instead of this, no more skin should be removed than is really diseased; and if a simple incision be afterwards made thro' the skin and cellular substance along the course of the swelling, all the sound teguments which cover it may thus be separated from it; and on the tumor being extirpated, and the teguments being again replaced, they may be retained in their situation in the manner we have mentioned, either by ligatures, by the uniting bandage, or by the assistance of adhesive plasters. In this manner I have on different occasions accomplished

accomplished the cure of fores remaining after the extirpation of cancerous breasts, in the space of three weeks or a month; which, in the usual method of performing this operation, would not have healed in less than eight or ten weeks.

3. After all the cancerous parts have been removed, if the fore cannot be entirely covered by such portions of the skin as have been saved, and if any considerable quantity of blood is discharged by the smaller vessels, the remaining wound should be dressed in the usual manner with dry lint; but when this does not happen, no dressing answers so well as pledgits of one or other of the mild ointments we have already recommended: and when the dressings can be easily removed, by a free supuration coming on, the fore being now in a state exactly similar to a simple ulcer from any other cause, is to be treated accordingly, and a cure to be promoted as quickly as possible.

4. But some little time before the fore heals up, an issue should be introduced, so as that it may come to discharge freely before

before the cicatrix is quite formed. This, when the complaint has been of long standing, is particularly requisite ; as also, when it seems to have been occasioned by any particular determination, in consequence of a redundancy of fluids in the system, either from suppressed menses, or from any other cause. And in this way I have no doubt but an issue may be, and frequently has been, a means of preventing the return of cancers after extirpation.

It has been sometimes advised, as the best method of forming such a drain, to keep the part open from whence a cancerous tumor has been extirpated. I should strongly suspect, however, that the irritation produced by an issue, directly upon the old seat of a cancer, might sometimes do mischief: and as all the advantages attending the practice are probably to be obtained from an issue on whatever part it is situated, I would therefore always advise, that the fore itself should be immediately healed up ; and that an issue should be introduced, in the manner we have mentioned,

tioned, in some other convenient situation. After cancers of the breast, it has been a frequent practice in the Royal Infirmary here, to put a seton into the side, near to the original seat of the disorder; and as it has been thought to produce considerable advantages, and as the side is perhaps as convenient a situation for a drain as any other, it may therefore be always preferred.

These are the different circumstances, in general, to be attended to in the extirpation of cancers; and as, from what has already been said, the removal of the diseased parts seems to be the only effectual remedy in every case of cancer, there are very few circumstances only, which should ever prevent its being put in practice. And these, in general, are,

1. When, by a long continuance of the disorder, cancerous ulcers, and scirrhus glands, have appeared in several different parts of the body, the removal of one, or even all of these, as it would not probably prove effectual, so, in such circumstances, the

the operation, it is presumed, ought not to be recommended.

2. When a cancerous tumor adheres so firmly to the parts beneath, that the whole of it cannot be removed, whilst at the same time it might be dangerous to extirpate along with it those parts with which it is connected, extirpation can never be advisable. Thus cancers adhering to the trachea arteria, or to the coats of a large artery, can never, without the greatest risk, be extirpated.

One instance of the rashness of a surgeon, in attempting an operation in such circumstances, and which was attended with effects which proved immediately fatal, came within my own knowledge. In an attempt to cut out a large scirrhus tumor seated upon, and lying immediately contiguous to, the femoral artery, and so high in the thigh that a tourniquet could not be applied, the artery was unfortunately opened, and the patient died among the surgeon's hands.

But the attachment of cancerous tumors

mors to the circumjacent muscles or tendons, should never entirely prevent their extirpation; for considerable portions of these, it is well known, may, without much inconvenience, be taken away along with them. I have, on many occasions, been reduced to the necessity of taking away large portions of the pectoral muscle along with cancerous tumors of the mamma, without any inconvenience ensuing from it.

There is a paper upon cancers, by the celebrated Monsieur le Cat of Rouen, inserted in the first volume of Memoirs of the Academy of Surgery at Paris; in which the author is clearly of opinion, that extirpation is the only remedy to be depended on, and advises it in the most desperate cases. But on the subject of which we are now treating, he goes a much greater length than I could from experience venture to do: although, independently of the authority of such a respectable author, and of the instances he mentions of the success of his practice, I think

think there cannot be the least doubt of its being better to follow his advice, than to allow a patient, labouring under a cancer, to remain with the certain prospect of suffering a miserable death, and without making trial of the only remedy which art can afford. For, however fixed a cancerous tumor may appear, if the parts to which it adheres, can without much danger be removed, and if the case is otherwise favourable, the operation ought undoubtedly to be always advised *.

This was my opinion several years ago, when the first edition of this work was published: Since that period, I have met with many instances of very bad cancers, particularly of the mamma; in some of which, attachments occurred to the periosteum of the ribs; and in others, the disease was found to extend to the corresponding

* Upon this subject M. le Cat expresses himself thus: " L'adherence d'un cancer aux muscles pectoraux, aux cotes meme, ne fera pas un excuse valable, si ces muscles si ces attaches de la tumeur aux cotes peuvent etre emportes, de façon qu'il ne reste, que de sain au-delà. *Loco citato.*

sponding clavicle; and frequently by a chain of indurated glands to the very bottom of the arm-pit. Very few cases, however, have occurred, in which, by cautious dissection, the diseased parts were not totally extirpated; and in every instance where this was found to be practicable, much advantage was evidently derived from it: In most of them, no return of the disease has been as yet experienced; and, even in those which have relapsed, much relief has been derived from the operation, by the pain and misery of the patient having been for some time removed by it; whilst in no instance, were the symptoms which ensued from a return of the disease, more severe, than those to which the patient had been liable before any operation was advised.

3. But, an operation can never be advisable, where the diseased parts are so situated as to prevent their being totally extirpated; as is the case in cancers of the uterus, of the liver, rectum, &c.

When, from the existence of one or all of these causes, a cancer cannot with pro-

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priety be extirpated, the next consideration is, to palliate the different symptoms, so that the disease may be rendered as tolerable to the patient as possible.

As, for this purpose, the great object to be kept in view, is the abatement or prevention of pain, nothing should be either exhibited internally, or applied outwardly, that can have the least effect in raising irritation or inflammation. So that, for diet, the lightest vegetables and milk should be preferred to every thing else ; no animal food should be allowed, nor spirits, wine, or any fermented liquors ; all violent exercise, and whatever, in short, can heat, or as it is termed inflame, the blood, should be carefully avoided.

The fetor attending cancerous ulcers being commonly very disagreeable, and the matter afforded by them being usually very thin and acrid, it becomes always a consideration of importance to have these circumstances changed, and a discharge of a better nature induced. In this view, hemlock frequently proves serviceable, both as
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an internal medicine and as an external application. For internal use, there are two preparations of the remedy commonly used ; the powder, and the extract : But as the former, when properly prepared, seems to possess all the virtues of the latter, and as it is not liable to so many accidents in the preparation, it should for that reason be in general preferred. The extent of the dose, and number of repetitions, can never be determined but by trial ; some patients being able to bear three times the quantity that others can admit of : so that these circumstances must always be regulated by the strength of the patient, and by the state of the stomach at the time.

When recent hemlock can be procured, a quantity of the juice being mixed with the common emollient poultice, makes a very convenient and effectual application for cancerous sores ; and in the winter-season, when the juice cannot be obtained, the dry powder made into a poultice in the same manner, answers the purpose tolerably well.

The external use of cicuta proves generally more expeditious than its internal exhibition, in procuring a discharge of good matter ; and, in this respect, it commonly proves more effectual too, even than the carrot-poultice, so much recommended for this purpose in different kinds of sores.

A good discharge being once obtained, the common unguentum cereum is the mildest and most simple application that can be used ; and the parts should be dressed with it more or less frequently, as the discharge is more or less copious : But the several dressings should be performed so quickly as to prevent as much as possible the admission of the air, which in every ulcer, but more especially in the cancerous, always produces disagreeable effects, both in causing irritation, and in vitiating the nature of the discharge.

The violent shooting pains which prove always so tormenting in cancerous cases, are frequently moderated by a continued use of cicuta ; but when this effect is not obtained from it, it becomes necessary to have

have recourse to opiates in large doses, which ought to be repeated at such intervals as the violence and returns of the pain may indicate. These pains, too, are sometimes relieved by the use of warm emollient fomentations.

By a proper attention to the different circumstances we have taken notice of, particularly to the preservation of a well-conditioned discharge, and by a well-timed use of opiates, very bad cases of cancer may be sometimes so far palliated, as to render them, in some measure, tolerable; though never to such a degree as to prevent the sufferers from regretting daily their not having, in due time, had recourse to extirpation.

Various remedies have at different times been proposed for the cure of cancers, of which, in the course of this treatise, we have taken little or no notice. Of these the cicuta which we have just now spoken of, belladonna, and different preparations of arsenic, have been most frequently employed. But although the cicuta, as

we have said above, has, in some instances, been a means of producing a good discharge from cancerous sores, yet neither this nor either of the others have ever, so far as I know, produced any permanent advantages in cases of real cancer.—We have heard of arsenic proving useful in cancers, not only as an external application, but as an internal remedy: but although I have employed it in a variety of cases, the result of these trials has never proved in any degree adequate to the accounts which have been given of it.

In a late publication on cancerous disorders by Mr Justamond of London, we find an escharotic application much recommended. It was long employed in Vienna and other parts of Germany; and as Mr Justamond, whose experience in cancerous diseases has been extensive, speaks favourably of it, it therefore merits the attention of practitioners: Although I have used it, however, in different cases, I have not as yet observed any real advantages to ensue from it; but as no remedy should be hastily rejected,
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which has been recommended by an author of reputation, I am resolved to give it a fair and impartial trial. This application is a composition of steel and sal ammoniac infused in spirit of wine, with a certain proportion of oil of tartar and spirit of vitriol. The edges of cancerous sores, as well as the hard tumors or excrescences which frequently occur in ulcers of this kind, are by Mr Justamond's method kept constantly moist with this liquid; and during the use of it, he likewise recommends an internal use of steel and sal ammoniac in the form of flores martiales.

In other species of ulcers attended with a discharge of thin fetid matter, and in which tonic remedies seem to be indicated, I have in different instances used the flores martiales with advantage; but, as I have already observed, neither this, nor any other medicine, has ever, in the course of my experience, produced any material benefit in cases of cancer.

The flores martiales, may be given either in the form of pills, or in powders. It

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feldom produces sickness, and may therefore be given in much larger doses than are commonly employed.—The first doses should not exceed twelve or fifteen grains; but they may be increased, in a gradual manner, to half a drachm or more, to be repeated three, four, or five times daily. In every case where steel medicines are found to be proper, the flores martiales, by conveying the remedy in a very subtle form, is perhaps preferable to any other preparation of it*.

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* To such as have not an opportunity of perusing Mr Justamond's treatise upon this subject, it may prove acceptable to have the prescription for the liquid which he recommends so warmly as an application in cancerous affections. It is as follows.

R. Rameator. ferri lotor. et supra ignem in vase aperto siccatorum & minutissime contusorum, salis armoniaci in pulverem redacti, aa unc. iv. Mixta dentur in retortam terream optime in fundo et circumferentia lege artis minutam, imponatur hæc capellæ, admoveatur vas vitreum recipiens, quod bene lutetur & detur ignis in gradu digestionis; & dum retorta calefieri incipit, augeatur successive ad sublimationis, finitaque sublimatione ad calcinationis, gradum. Hæc facta

SECTION IX.

Observations on the Cutaneous Ulcer.§ 1. *General Remarks on Cutaneous Affections.*

THERE are few complaints, which are less understood by practitioners, than the different disorders to which the skin is liable. This, indeed, is in some mea-

facto successivæ refrigeratione committatur retorta, et ex refrigerata fractaque accipiatur calcinatum in fundo hærens, caput mortuum teratur, et subigatur minutissime in mortario lapideo; dein subactum imponatur in vas vitreum, et affundantur spiritus vini rectificatissimi Empyreumaticum odorem non redolentis lb. ij. Agitentur sæpius primis octo horis: post viginti quatuor horas agitatis denuo instilletur tribus quatuorve inter-

measure the case, both with respect to such as are attended with fever, and those that are not: it is, however, more especially so with the latter, which only are to be here taken notice of; those of the exanthematous kind, as they are termed, belonging more properly to the province of medicine.

The appearances of such complaints are so various, and the descriptions given of them by different authors are so confused
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interstitiis observatis, acerrimi, ut vulgo vocatur, olei vitrioli nigri unc. i.—ad quamvis instillationem semper mixta agitando; deinde in quiete permittantur per viginti quatuor horas, his elapsis decantetur tinctura, residuo vero in fundo affundantur prioris spiritus vini lb. ij. Agitentur iterum pluries, dein extractio de novo relinquatur per viginti quatuor horas; his transactis instilletur iterum, ut prius, olei vitrioli supradicti unc. i. Effervescentia finita vero infundantur spiritus tartari simplicis unc. iv. Agitentur, et finita agitatione aliquoties repetita relinquatur in vase per viginti quatuor horas; his elapsis secunda hæc solutio misceatur priori decantatz et optime simul agitentur, tunc parata est ad usum PANACEA NOSTRA ANTI-CANCROSA.

This was originally published by Dr Francis Xavierus de Mare, in a treatise which he published some years ago at Vienna.—He had long kept this liquid a secret, but at last made it public in the year 1767.

and intricate, that it is scarcely possible, from the several writings on the subject, to collect any thing satisfactory. By different writers, different names have been given to the same appearances; many complaints of this kind are enumerated by old writers, which are now never to be met with; and diseases of a similar nature, though still, in some respects, different, have been regularly described by modern authors, which do not appear, in ancient times, to have been at all known. It is much to be wished, therefore, that, by some able practitioner, a thorough investigation of the subject was attempted, as there does not appear to be any part of medicine more defective than that which relates to the history and theory, as well as to the treatment, of cutaneous disorders.

To give a particular detail of all the varieties of these complaints, would of itself require a pretty extensive volume, and it would also be entirely foreign to our purpose; all that is here proposed, being to give a few general observations upon such
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eruptions of this kind, as, when neglected or improperly treated, are apt to give rise to troublesome ulcers.

A great many complaints of the eruptive kind, have, by different authors, been described under the term *Herpes*, from their being very apt to spread, or to creep, as it were, from one part to another ; and by this appellation have been distinguished, by late writers, several disorders which, though not entirely the same, yet bear a considerable resemblance to the *lepra* of the Greeks, and to the several species of *impetigo* enumerated by Celsus. As none of these, however, are now in their true form ever to be met with, at least in these climates, it is not here necessary to enter into a particular enumeration of them ; and this more especially, as very minute descriptions of them can be found in many of the old writers, and nothing new, it is probable, can now be offered on the subject.

§ 2. *Of the different Species of Herpes.*

THERE have commonly been comprehended, it was remarked, under the term Herpes, a variety of eruptive disorders: but many of the distinctions in these are taken from very trivial circumstances, and such as do not in any respect influence the treatment; and on examination it will be found, that all the varieties of importance may be comprehended in the four following species, viz. the Herpes Farinosus, Pustulosus, Miliaris, and Exedens.

The first of these, viz. the Herpes Farinosus, or what may be termed the dry Tetter, is the most simple, both in its nature and treatment, of all the several species. It appears indiscriminately in different parts of the body; but most commonly on the face, neck, arms, and wrists, in pretty broad spots of exceeding small red pimples. These are generally very itchy, though not otherwise troublesome: and after continuing a certain time, they at last fall off in the form of a white powder similar to fine bran, leaving

leaving the skin below perfectly sound; and again returning in the form of a red efflorescence, they fall off and are renewed as before.

The second species of the disorder, viz. the *Herpes Pustulosus*, appears in the form of pustules, which originally are separate and distinct, but which afterwards run together in clusters. At first they seem to contain nothing but a thin watery serum, which afterwards turns yellow; and, exuding over the whole surface of the part affected, it at last dries into a thick crust or scab: When this falls off, the skin below frequently appears entire, with only a slight degree of redness on its surface; but, on some occasions, when the matter has probably been more acrid, upon the scab falling off, the skin is found slightly excoriated. Eruptions of this kind appear most frequently on the face, behind the ears, and on other parts of the head; and they occur most commonly in children.

The third species of *Herpes*, viz. the *Miliaris*, breaks out indiscriminately over the whole

whole body ; but more frequently about the loins, breast, perinæum, scrotum, and inguina, than in other parts. It generally appears in clusters, though sometimes in distinct rings or circles, of very minute pimples, which, from their resemblance to the millet seed, has given rise to the denomination of the species. The pimples are at first, though small, perfectly separate ; and contain nothing but a clear lymph, which, in the course of the disease, is excreted upon the surface, and there forms into small distinct scales : these at last fall off, and leave a considerable degree of inflammation below, that still continues to exude fresh matter, which likewise forms into cakes, and so falls off as before.

The itching in this species of the complaint is always very troublesome ; and the matter discharged from the pimples is so tough and viscid, that every thing applied to the part adheres in such a manner, as to occasion a great deal of trouble and uneasiness on its being removed.

The different species of herpes are commonly,

monly, in England, distinguished by the names of Tetter, Shingles, and Ringworm, but the last is most frequently applied to the variety of the disorder which we are now considering.

The Herpes Exedens, so called from its destroying or corroding the parts which it attacks, appears commonly at first in the form of several small painful ulcerations, all collected into larger spots of different sizes and of various figures, with always more or less of an erysipelatous-like inflammation. These ulcerations discharge large quantities of a thin, sharp, serous matter; which sometimes forms into small crusts, that in a short time fall off; but most frequently the discharge is so thin and acrid, as to spread along the neighbouring parts, where it soon produces the same kind of sores.

Though these excoriations or ulcers do not, in general, proceed farther than the cutis vera; yet sometimes the discharge is so very penetrating and corrosive, as to destroy the skin, cellular substance, and, on
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some occasions, even the muscles themselves. It is this species of the disorder which should properly be termed the Depascent or Phagedenic ulcer, from the great destruction of parts which it very frequently occasions : but, by a piece of very great impropriety, ulcers of the herpetic kind have most commonly been supposed to be connected with scurvy ; and have, therefore, by practitioners in general, been usually distinguished by the appellation of Scorbutic. Whereas, there is nothing more certain, than that herpes is a complaint which is generally, if not always, connected with that state of the system, probably the most opposite of any to that which takes place in true scurvy, I mean the plethoric and inflammatory ; whilst in scurvy a high degree of putrescency is well known to constitute the very existence of the disease.

And besides, the real scorbutic ulcer, hereafter to be described, exhibits appearances perfectly different from the disorder now under consideration ; inasmuch that

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there is scarcely a possibility of mistaking the one for the other ; and the remedies necessary in the two diseases are just as opposite as their several symptoms and appearances are different.

This species of herpes appears, at times, in every part of the body, but most frequently about the loins, where it often spreads to such a degree as to surround the whole circumference of the waist. It seems to be easily communicated by contagion, that is, by the application of the virus either through the intervention of clothes, spoons, or other table utensils. This is indeed the case, in some degree, with every species of herpes ; I have known instances even of the first or dry species of the disorder proving so, which would not *à priori* be so readily suspected.

§ 3. *Of the Cure of the Cutaneous Ulcer.*

IT was already remarked, that, in the descriptions given of these disorders, there is very little accuracy to be met with amongst authors. The same confusion and
uncertainty

uncertainty likewise occur in the method of cure.

It was always, till lately, believed, that eruptive diseases of this nature could never appear but in consequence of some general morbid affection of the system; and accordingly, a great variety of internal remedies have been recommended by almost every author who has written upon the subject. It has even been commonly considered as an unsafe and dangerous practice to attempt the cure of such eruptions, in any other way than by correcting the original disorder of the fluids, which at first was supposed to have produced them.

It is somewhat singular, however, that the opinion should have remained so long uncontroverted by regular practitioners; as, from the writings of many old authors, it appears that complaints of this kind were constantly and easily cured, as they still are by every itinerant practitioner, with local external applications only.

This, we should imagine, ought very soon to have overturned the general notion

which prevailed with respect to the nature of these disorders, and which seemed all along to have no other foundation than antiquity for its support. Modern practitioners, however, not being shackled by such authority, have, in many instances, ventured to dispute, and boldly to deviate from, the opinions of their predecessors; and the improvements which have universally resulted from such a free spirit of inquiry, have never yet given them reason to repent their having done so.

This, in no instance, has been more remarkable, nor attended with better effects, than in the treatment of cutaneous disorders, which, from having been very perplexed and intricate, will soon, it is hoped, become a very simple and easy part of the practitioner's employment.

Instead of the tedious and debilitating courses of medicines which patients went through formerly, and which perhaps they are still too frequently obliged to undergo, it is now found, that the greatest number of these complaints are more certainly and speedily

speedily removed by the use of local remedies merely, than they ever are by a contrary course. This, probably, is one reason, amongst others, why all complaints of this nature are classed among local disorders, in the *Genera Morborum* of our justly celebrated professor Dr CULLEN; and which, without any other sanction, would, of itself, be sufficient authority for their being here inserted among such affections *.

That internal remedies may sometimes be of use, and even necessary, in many instances of cutaneous eruptions, will not, probably, ever be doubted; but that they ever prove serviceable in the way commonly imagined, namely, by correcting particular kinds of acrimony supposed to exist in the mass of fluids, does not appear in the least probable: Nor do the good effects which are sometimes produced by internal medicines render it less certain that

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* The character given by Dr Cullen of the class *Locales*, is, "*Partis, non totius corporis, affectio*,"
Vid. *Synop. Nosolog. Method. Edinburgi*.

cutaneous affections are in general only local disorders.

Thus, in many diseases of the skin, antimonials are frequently exhibited with considerable advantage. But the principal advantages attending them seem to depend entirely upon their producing a determination to the skin, and keeping up a free discharge of the matter of perspiration; which frequently, from want of cleanliness, and sometimes from other causes, being long retained on the surface of the body, and there turning acrid, may often, it is probable, give rise to many of our cutaneous affections. And accordingly we find, that all such remedies prove constantly more or less effectual, according as they are more or less powerful in keeping up a free perspiration.

By those who maintain, that an acrimony of the fluids is the most common cause of such disorders, it is supposed, that the beneficial effects of antimonials and other diaphoretic medicines depend entirely on their evacuating or carrying off the morbid

morbid matter, with which the fluids, in these disorders, are imagined to abound.

Many arguments, however, occur against the probability of this opinion; and in particular the difficulty, or rather impossibility, of showing how these morbid matters, supposing that they really existed, should be more readily evacuated by sudorifics, than the other parts of the blood with which they must in the course of the circulation be intimately mixed: but what puts it beyond a doubt that all such medicines act entirely in consequence of their preserving a free perspiration, and not by evacuating any fluids particularly morbid, is, that the very same advantages, in all such complaints, are frequently to be obtained, merely by the use of repeated warm bathing, with a due attention in other respects to cleanliness.

From this view of the theory of such complaints, many circumstances with respect to them can be much more clearly accounted for, than on any other suppo-

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sition. Of these, however, we cannot here enter into a full consideration; and shall only observe, that by it may be explained the reason why such eruptions appear very frequently in a partial way only, which they often do, by breaking out in a single spot, without affecting any other part of the surface. This we cannot suppose would frequently happen if these disorders always proceeded from a general affection of the system; but it may very readily occur from a local stoppage of perspiration, occasioned by the application of such causes to particular parts as we know to be generally followed with that effect. And upon this principle, as was already remarked, is accounted for, much more obviously, the operation of the several remedies, than on any other.

In the treatment of every disorder of this kind, the first and principal circumstance to be attended to, is, that not only the parts affected, but even the whole surface of the body, be kept as clean and perspirable as possible: for which purpose
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nothing is of so much importance as the frequent use of warm bathing, together with gentle frictions with clean linen cloths; which, in the dry species of the complaint, may be applied over even the diseased parts; but in the others, especially where considerable ulcerations occur, the frictions can be applied to such parts of the body only as are not, at the time, affected. When due attention is paid to this article of cleanliness, few or no internal remedies are ever necessary in the slighter species of herpes.

Of all the external applications, usually employed both in the mild and in the more inveterate species of these disorders, the several drying and astringent remedies are most to be depended on: Of these, the most simple of all is lime-water; which, in slight cases of dry tetter, often answers the purpose, but it seldom proves effectual in any of the others.

The different solutions of lead in the vegetable acid, prove often, in affections of this nature, very effectual; and of these the
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watery solution of *saccharum saturni*, as directed in the treatise on inflammation, is always most to be depended on. It may either be applied in the form of cataplasms, or on soft linen rags laid directly upon the parts. The latter is perhaps the most convenient method; and in such affections, from its being more cleanly than poultices, should always be preferred.

Although this, in general, is found to be a very useful application in the milder eruptions of this kind; yet, in such cases as prove to be inveterate, I have frequently found, that weak solutions of corrosive sublimate in water, have proved more beneficial. About ten grains of the former, to a pound of the latter, makes, for all such affections, a very easy and efficacious wash.

Decoctions of the different kinds of boles, and of the astringent earths, are sometimes, too, used with advantage in slight cases of this kind; but in general, the preparations of lead, as we have directed above, with the watery solution of corrosive

rosive sublimate, prove a great deal more effectual; and do indeed, in a great measure, render every other application unnecessary.

Ointments prepared with *saccharum saturni*, and corrosive sublimate, have frequently too, in these disorders, been used with advantage: but as, in such forms, they must necessarily be combined with unctuous substances, they cannot of course prove so cleanly as the watery solutions of the remedies; and as they do not in that way prove in any respect more efficacious, they ought never therefore to be preferred.

By proper attention to the different circumstances we have mentioned, many of the milder complaints of the herpetic kind are often removed: but when the disorder is of a more inveterate nature; when it is of long standing; and especially when it is accustomed to discharge large quantities of matter, as in the *herpes exedens* frequently happens, other remedies come likewise to be necessary.

The more obstinate and virulent such
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complaints are, the greater attention becomes requisite to the promoting of a free discharge by the skin ; for which purpose, together with warm bathing, as we formerly recommended, warm diluent drinks should be plentifully allowed. New whey answers in this view very well, and it is likewise of use as a gentle laxative. Decoctions of sarsaparilla and of mezereon, both separately and combined, have, in different forms, been recommended for the same purpose. Although I have known them used, however, in a variety of cases, I cannot say they ever seemed to be attended with any superior advantages to those which are produced by the decoctum lignorum of the shops ; which, when properly exhibited, proves always a powerful diaphoretic. And we have it always in our power to increase the diaphoretic powers of this remedy by adding to each cupful of the decoction, fifteen or twenty drops of tincture of antimony.

When, in this manner, two or three pounds of the remedy are taken at proper
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intervals every twenty-four hours, it seldom fails to keep up a very free perspiration.

As a gentle diaphoretic too, I have often known crude antimony prove useful, when duly prepared, and given to the quantity of about two drachms in the day, either in powder or in the form of an electuary. It commonly answers tolerably well by itself; but, when conjoined with a small proportion of gum guaiac, it seems not only to prove more certainly sudorific, but more readily goes off by stool, which in some cases renders the combination of the two remedies of service.

In patients of plethoric habits, in whom complaints of this nature frequently occur, laxatives prove often serviceable; but those of the cooling kind only should be used. Seawater is very commonly prescribed in these disorders as a purgative, and it frequently answers exceedingly well; but to many patients it proves so nauseous and disagreeable, that it cannot be exhibited in proper quantities. When this is found to be the case, cream of tartar, which is a much
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more agreeable medicine, may be used instead of it: and as it cannot be conveniently given in solution, on account of the large proportion of water necessary for dissolving it, the most commodious way of using it is in the form of an electuary; six or eight drachms of the remedy in powder, with an equal quantity of sugar, being made into the consistence of a linctus, or of an electuary with the mucilage of gum arabic, makes an easy dose of a very agreeable laxative.

Together with these internal remedies, an issue, in the more inveterate species of herpes, becomes always necessary; and it should indeed be among the remedies first prescribed; for here, as in the treatment of all old ulcers which have served as issues to the constitution, the cure of the disorder is rendered more certain and easy, by establishing proper drains for the superfluous fluids; without which the sores, although they may be healed, are very apt soon to break out again.

In different eruptions of this kind, especially

cially in the herpes exedens, very considerable degrees of inflammation often occur; for the removal of which, warm poultices and fomentations are generally employed, but seldom or never with any advantage. And in no case whatever does the superiority of saturnine applications over the whole tribe of emollients, in inflammatory affections, appear more evident than in this. For the latter almost constantly seem to encourage the spreading of the secreted acrid humour; and thus, instead of removing inflammation, in such instances, they rather tend to promote it: whereas the different saturnine applications appear not only to correct the acrimony of such humours, but tend greatly to prevent their spreading so far as they otherwise would do.

In all superficial ulcerations of the herpetic kind, the saturnine and sublimate solutions, as we have already recommended, in general prove effectual; but whenever the ulcers have penetrated deep into the substance of the muscles and other parts,

parts, as they frequently enough do, an ointment prepared with calcined zinc I have sometimes found to answer better: about two drachms of zinc in fine powder, to six drachms of axunge, seems to be in general a proper proportion. It lessens the inflammation which commonly takes place; and it has often a considerable effect in altering the nature of the discharge from a thin acrid sanies to a thick purulent matter.

The common unguentum saturninum is also, when newly prepared, a very proper application for the same purpose. But it ought never to be made use of after being long kept: for the lead seems thereby not only to lose its activity, which it in some measure, in unctuous preparations, always does; but that ointment, probably from its being prepared chiefly of axunge, or of wax and oil, without any addition of the antiseptic gums and resins, is much more apt to turn rancid than almost any other ointment in common use.

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In such cases, too, an ointment prepared with axunge and mercurius precipitatus albus, I have sometimes known of use; but as it commonly occasions a good deal of pain and irritation, it is not in every case admissible.

By a due continuance of the several remedies we have pointed out, whilst proper attention is at the same time given to cleanliness, the most troublesome species of herpes will in general be entirely removed. But in some instances, notwithstanding the use of all these, and of every other ordinary remedy, complaints of this nature still continue obstinate; they do not seem to yield in the least, and frequently even turn more inveterate.

In such cases, there is commonly much reason to suspect that some other disease subsists at the same time; which, on inquiry, is frequently found to be of the venereal kind, for herpes often appears as a symptom of that disease. This, however, may commonly be known from the history of the complaint, and likewise from

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the situation of the eruptions. For all eruptions of this kind which appear in lues venerea, are constantly above some of the hard and thinly covered bones, as those of the cranium, sternum, and tibia: at least, in the beginning of the disorder, these are the parts chiefly affected; though, no doubt, in its more advanced stages, the whole surface comes to be more or less affected.

As soon as the complaint is discovered to be of the venereal kind, its cure must depend in a great measure upon the general treatment necessary in that disorder; so that, by a proper use of mercury, with a continuance of the different remedies already enumerated for herpes, all affections of this nature may in due time be expected to be eradicated.

On other occasions, again, and when there is no cause for suspecting a venereal taint, it sometimes happens, that even the slightest species of tetter resists all the common remedies both internal and external, and perhaps, too, becomes more inveterate.

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In such cases, there is frequently conjoined with the disorder which we are now considering, the common scabies or itch: and when it happens to be so, as I have sometimes seen, a very disagreeable and troublesome disease comes to be produced; what may be considered as a tertium quid; or a production of the two; which, in its appearance, is exceedingly loathsome; little less so, indeed, than the descriptions that are given of the lepra of the ancients; and, when it is allowed to remain long, it proves sometimes almost as inveterate.

The itch being such a well-known disorder, its conjunction with herpes is commonly very easily detected: and when once it is known to take place, the cure must consist in the several remedies already recommended for herpes, together with such as are more particularly active in the cure of scabies; and of which, though there are many recommended by authors, yet none ever prove so certainly efficacious as sulphur. Mercury, too, does, no doubt, often cure complaints of this kind; as it

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does, indeed, the itch in all its stages: yet as it fails in many instances, which sulphur, when properly directed, very seldom does, the latter should in general be preferred.

In every eruption of the herpetic kind to which children are liable, sulphur, in one form or other, proves commonly more effectual than any other remedy: When in these complaints, therefore, the usual remedies are found to fail, sulphur should always be employed; and, to practitioners of experience, it is scarcely necessary to remark, that the Sulphur Vivum, as it is termed, in fine powder, proves always much more effectual than the flowers of sulphur. As this remedy evidently loses much of its strength by the process of sublimation, this preparation of it should never be employed for any cutaneous eruption.

There is a species of herpes to which, in some constitutions, especially in females, the face is particularly liable; and no variety of the disorder proves either more
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distressing to patients, or more perplexing to practitioners.—All the common preparations of sulphur, as well as different ointments and washes of the mercurial kind, are commonly employed here without any advantage; but the following combination of sulphur with saccharum saturni, I have found to succeed in many instances of the most obstinate species of this disorder.

R. Lac. sulphuris	-	3ij.
Sacch. saturni	-	ʒj.
Aq. rosarum	-	ʒviij. m.

The eruption to be bathed with this morning and evening, care being taken to shake the vial when used.

In what manner this remedy acts, I know not; but I have known different instances of complete cures being effected in very obstinate cases by a frequent use of it.

When, however, in cases of this kind, as well as in every species of herpes, it may for some reason or other be thought proper to make use of mercury instead of sulphur, an ointment similar to what in the dispensatories is termed Unguentum Citri-

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num, has on many occasions been found to answer exceedingly well. But as this ointment has commonly been ordered with too great a proportion of mercury, it frequently acts as a caustic, and occasions a great deal of irritation. That effect, however, is easily prevented, whilst at the same time all the advantages of the remedy are preserved, by diminishing the quantity of mercury: Half an ounce of mercury dissolved in an ounce of strong spirit of nitre, and a pound either of axunge or of fresh butter, have, upon trial, been found to be very good proportions: or, as this ointment is very apt to turn too hard, it may at first be made with a double proportion of mercury and spirit of nitre; and, by adding an equal quantity of axunge at the time of using it, the same strength of the remedy is preserved, whilst at the same time an ointment is obtained of a better consistence.

This makes a very effectual and perfectly safe ointment for all such eruptions as partake either of a venereal taint, or that
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are in the least connected with common itch ; and may be used for the latter disorder, in preference to all other mercurial applications, by those who, on account of its offensive smell, or for other reasons, do not incline to make use of sulphur. Indeed no preparation of mercury, in the course of my experience, has ever proved so useful as this ointment ; not only in cases of real herpes, but even in common itch. It only indeed requires to be more generally known, in order to be very universally employed in every affection of this kind.

By a proper and continued use of the several remedies recommended, but above all by a due attention to cleanliness, almost every herpetic complaint may at last be removed.

After these several observations on such disorders, it may not be improper to remark, that there are many complaints of the eruptive kind, to which children especially are liable, which may all be reduced to one or other of the species of herpes.

we have enumerated, and which of course may be all cured by the same general method of treatment.

Thus the *tinea capitis*, and *crusta lactea*, are commonly described as distinct and unconnected diseases: but both of these affections, it is presumed, may, with propriety enough, be reduced to the same species of herpes; and they seem evidently, indeed, to belong to the second, or what we have termed *Pustulosus*, as they appear to be exactly of the same nature, and to differ only in situation; the *tinea* being on the hairy scalp, what the *crusta lactea* and other such eruptions are upon the face.

The several means of cure we have enumerated for herpes in general, apply, as was observed, with equal propriety to any of these; but in the *tinea capitis* a peculiarity occurs from the situation of the disorder, which, in the treatment, it has been frequently found necessary to attend to. In this complaint, the hair, by occasioning a more considerable remora of the exsuded matter than what occurs in any other species

species of herpes, produces in it a greater degree of acrimony, which sometimes gives rise to bulbous swellings, by being roots of the hair; and hence it has been supposed, that these swellings, by being perhaps the first parts affected, tend to produce and to keep up all the other symptoms of the disorder: So that it is commonly recommended as the first step in the cure of tinea, to extract entirely all the hairs by the roots, either with pitch-plasters, or with some other adhesive application.

This, however, is always attended with a great deal of pain; it sometimes produces very troublesome inflammations; and besides, it is never in any respect necessary in the first stages of the disorder: for tho' in very long continued cases of tinea, these tuberosities at the roots of the hair do sometimes become so considerable as to render the cure of such affections more tedious than they otherwise would be; yet, merely by keeping the hair very short, and the parts affected as clean as possible, the

the different remedies already enumerated almost always effect a cure, without having recourse to the extraction of the hair.

The watery solution of corrosive sublimate was already recommended as an external application for different herpetic eruptions; but in no species of the disorder does it produce such remarkably good effects as in tinea capitis; inasmuch that, except in very inveterate cases, a cure may generally be obtained by the use of this remedy alone.

Issues have already been mentioned as being very useful in all eruptive disorders of this kind; but in these complaints, which, in childhood especially, are so common, they seem to be still more necessary, and more useful, than in the advanced periods of life; for, as those children that are particularly liable to such eruptions, are commonly of very gross full habits, it is scarcely possible often to obtain, at least, lasting cures, without in the first place introducing adequate drains.

Indeed issues alone, with a proper attention

tention to cleanliness, will very frequently, in the first years of childhood, get the better of all such complaints, without the assistance of any other remedy; and they do not by any means prove so prejudicial to the constitution as the frequent use of purgative medicines, which in such cases are so commonly employed. Purgatives do, no doubt, frequently prove serviceable, by carrying off such superabundances of fluids as the system happens to be loaded with, but never in such an easy gradual manner as is done by issues.

There has an objection been commonly made to the use of issues in general, that they are very apt to become so far habitual as to prevent them from being afterwards healed up, without considerable risk. This, in children, however, should never be any material objection to them: for, about the fifth or sixth year, when children are able to take more regular and fatiguing exercise; when the system, having acquired a firmer tone, is rendered more capable of preserving a due balance between

tween the solids and different contained fluids ; and when, in fact, the latter are never observed to be so abundant as in the preceding years of childhood ; there is not then the same necessity for such drains, and it might even in some instances be prejudicial to continue them longer. We do accordingly observe, about this period of life, that many of the eruptive disorders, which had prevailed before, now disappear entirely : nature then requiring a greater supply of fluids for all the different secretions, throws off, by their means, what had formerly been discharged by different eruptions upon the surface.

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SECTION X.

Observations on the Venereal Ulcer.

HAVING, in the several preceding sections, gone through the consideration of all such ulcers as can with propriety be looked upon as local affections merely, those of an opposite nature come next in course to be treated of; and they are, as was formerly remarked, to be comprehended in the second class.

The general character of this class has been already given. It includes, as was formerly remarked, all such ulcers as are connected with, or that depend upon, some general disorder of the system; and the several species of it are, the Venereal, the Scrobutic, and Scrophulous.

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Having spoken so fully upon the different species of local ulcers, all that is necessary upon those of the second class, is to point out, as concisely and distinctly as possible, the different characteristics by which they may be distinguished; together with such remedies as may be peculiar to or proper for each; referring always to what may have been remarked in the preceding sections, for whatever may, in common, occur between any two species of the different classes.

§ 1. *Varieties of the Venereal Ulcer.*

By venereal ulcers, in general, are meant such as are connected with an universal syphilitic affection of the system. But as chancres, and some other species of sores which occur in that disorder, may with equal propriety be termed Venereal Ulcers, although they are not always connected with a general infection, yet, in order to prevent any sort of ambiguity, it will be proper here to comprehend the consideration of these also.

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Venereal ulcers, then, may be divided into two varieties; namely, those which appear as primary symptoms of the disease, and such as may more properly be considered as symptomatic.

Of the former kind are chancres in general; whether upon the parts of generation, communicated by venereal intercourse; upon the nipples and breasts of women, by nursing infected children; or on the lips and parts adjacent, communicated by salutation: for all such sores, though seated on different parts, are of one and the same nature. Those ulcers, too, may sometimes be reckoned primary, which remain after the opening or bursting of such buboes as appear to have arisen from an infection lately communicated, and before there is any probability that the whole system is affected.

Such ulcers, again, are considered as symptomatic, which arise in consequence of a general taint of the habit. Of this kind are all those which succeed to old buboes, and such as appear along with
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other venereal symptoms a considerable time after infection; the most ordinary situations for which are, the throat, palate, nose, the parts immediately above the bones of the cranium, tibia, humerus, and other hard bones thinly covered with flesh.

Although, in many cases, it is not easy to make this distinction in venereal sores, yet it may frequently be done, and should be always strictly attended to; the treatment of the two different species being in some respects exceedingly different, as will be afterwards particularly taken notice of.

In such cases, the principal means of distinction are obtained either by information from the patient, or from the appearances of the different sores themselves.

If, soon after exposure to infection, an ulceration appears upon the part to which the virus was immediately applied, together with swellings of any of the glands in the course of the lymphatics, we may be almost convinced that these are only local affections, and ought to be considered accordingly as primary symptoms. Ulcerations

rations thus occurring from the immediate application of the venereal virus, are in general termed Chancres : they appear, at first, as small miliary spots, which soon rise and form little vesicles, that, upon bursting, discharge sometimes a thin watery fluid, and, on other occasions, a more thick yellow matter. The edges of such sores are generally hard and painful ; and are, together with the glandular swellings already described, commonly attended with more or less inflammation.

These are the common appearances of venereal sores from a recent infection ; but the ulcers which appear as symptoms of a long-continued affection, in general prove most troublesome. They are distinguished from those already described, as likewise from every other species of ulcer, 1. By information from the patient : 2. By their situation : and, 3. By their appearances.

Whenever an ulcer is suspected to be of a venereal kind, the real nature of it may frequently be learned from the patient. Thus, if a person, who has long had other

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symptoms of infection in his constitution, is attacked with one or more ulcers, whether in consequence of external injuries or not, and if they resist the common methods of cure, there can be very little doubt of their being infected with the general taint of the habit.

It sometimes happens, however, that such information is not to be obtained: for patients infected with disorders of this kind, very often conceal, and, when questioned, even refuse to acknowledge it; and on other occasions, patients cannot even themselves be certain whether they are infected or not, having perhaps no other symptoms at the time than these ulcers, and which they may not probably have considered to be of the venereal kind.

When this happens to be the case, we must endeavour to obtain our information from the situation and appearances of the ulcer itself.

By far the greatest part of venereal ulcers from an old infection, appear, as was already remarked, immediately above the bones,

bones, and such of these especially as are most thinly covered with muscles. They first appear in the form of a red, and somewhat purplish, efflorescence, not circumscribed, but in general rather considerably diffused. This soon comes to rise into a number of very small pustules, which ooze out a thin fretting serum. At first these pustules, when observed through a glass, appear perfectly distinct; but they at last run together, and form one large ulcer, whose edges are commonly ragged and somewhat callous; and there is generally a light red appearance, which extends a considerable space beyond the sore, over the skin that does not seem to be otherwise diseased.

Sores of this kind have frequently a very remarkable appearance, being hollowed as it were into the form of a cup, generally narrow and contracted at the bottom, with the edges extending gradually till they reach the outward circumference. This at least is commonly the case, except when carious bones happen

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to lie at the bottom of the sores, and then they are generally filled up with troublesome fungous excrescences.

Venereal ulcers are not commonly attended with much pain; at least, seldom so much as from their appearances might be expected. In some instances, however, it is otherwise: and the discharge of all such sores, though at first thin, comes at last to put on a very particular and characteristic appearance, being of a consistence rather more tough and viscid than good pus; with a very loathsome, though not the ordinary fetid, putrid smell; and a very singular greenish yellow colour.

These are the most common appearances of old venereal ulcers; and when all or any of them occur upon any of the situations enumerated, we may almost always determine, with certainty, the complaint to be of the syphilitic kind.

The distinction we have proposed of venereal ulcers into primary and symptomatic, is in the treatment of the disease found to be a matter of considerable importance; for

for those of the former kind, if attended to immediately on their first appearance, and before any absorption of matter has taken place, might undoubtedly be frequently removed without the assistance of any internal medicine, merely by converting an incipient chancre into the state of a simple ulcer, by burning or destroying the venereal matter contained in it with caustic *.

But although a cure might in this manner be sometimes effected with sufficient safety, yet as we have no means of becoming absolutely certain whether some of the virus may not have entered the system, the cure of even the slightest chancre should never be trusted to any other remedy than the internal use of mercury; with this material difference, however, that in incipient sores of this kind it commonly proves sufficient to administer a very small quantity of the remedy only, in proportion to what is requisite in such ulcers as appear in consequence of an old general infection.

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* Dr MONRO's Prelections.

The distinction proposed points out likewise another circumstance of consequence in the cure. In ulcers from an old pox, we ought never to make use of mercurial and other dressings with a view to heal and dry them up soon ; but should rather trust entirely to mercury given internally, and in the mean time continue to apply such remedies only as are necessary for keeping the sores clean and easy.

Thus the healing of the different ulcers merely by the use of internal remedies, affords the best, and indeed the only convincing proof of the disease being eradicated ; and it proves indeed the surest index by which a Surgeon can be directed, as it plainly shows, that little more mercury can be necessary ; a circumstance, of which a practitioner cannot by any other means be convinced.

With many practitioners, it has been the common method to treat in this manner chancres, and all those venereal ulcers we have termed Primary ; whilst, at the same time, they have not thought proper
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to apply the practice to those of long standing, or that proceed from a general infection of the system. But, with very little attention, it must appear, that directly the reverse of this should be followed; and the advantages attending it would commonly be found considerable.

THE reasons for keeping old venereal ulcers open during the internal exhibition of medicines, have been already explained. But in recent chancres, produced merely by a local application of a corroding matter, as they are entirely topical, and not connected with any disorder of the system, mercury given inwardly has not near such a chance of effecting a cure; and accordingly we often find, that, after very considerable quantities of the medicine have been used, we are at last, after all, obliged to have recourse to some external application.

This, however, is far from being the greatest inconvenience attending the practice: for as long as a chancre or ulceration

continues open, there is much more reason to suspect that the system may be generally infected, than if the chancre or source of that matter had been healed soon after its appearance.

By some it may be alledged, that it is not of much consequence whether a small or a larger portion of the venereal matter be taken into the system, as the least particle may just as certainly produce all the symptoms of the disease, as if a much larger quantity had been admitted.

This, in some respects, may probably be the case, as the syphilitic matter is known to be of a very penetrating and assimilating nature: but there is surely much more reason to hope, that a very small portion of such matter may be prevented from infecting the system, either by being stopped in its course; by occasioning, as it frequently does, obstructions of one or more glands; or even by being afterwards thrown out at some of the emunctories; than that the danger of a general infection, arising from a constant absorption and diffusion of the same

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fort of matter, can by any means be obviated or removed.

That the opinion we have ventured to give on this point is at least very probable, will not readily be controverted. But it is likewise said, that the practice of treating chancres, by the use of internal remedies only, can never occasion any kind of risk, as the mercury which is, or ought always in such cases to be exhibited, by acting as a certain antidote to the venereal virus, must soon exert its influence on the system, in such a manner as to prevent the latter from having any farther influence.

Such reasoning, however, is, in practice, by no means to be depended on. For, in the first place, though mercury in general proves a very certain cure for venereal complaints already subsisting in the constitution; yet, even where it has been previously exhibited in considerable quantities, it does not prevent a new infection from taking place: Of this I have known many instances; and it would probably, if attended to, be found to occur very frequently.

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But again, although we were even certain, if a proper quantity of mercury was present in the fluids, that no farther infection could take place from the introduction of a larger portion of venereal matter; yet, in cases of chancre, we can never be sure that the medicine will so soon enter the circulation as to produce this prophylactic effect. For when we consider how frequently practitioners are disappointed in attempting to introduce a sufficient quantity of mercury, either from the fault of the preparation, from its running off by stool, from its flying too quickly to the mouth, or from some other cause, no dependence, it is evident, is to be placed upon this matter.

Upon the whole, therefore, the cure of chancres, and of all venereal ulcers of the same kind, should be hastened as much as possible, not only by internal medicines, but by external applications likewise.

§ 2. *Of the Cure of the Venereal Ulcer.*

THE most effectual method in every case
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of chancre, as we have already hinted, would probably be, to touch the part affected with some strong caustic as soon as the disease is observed; and, by thus destroying at once all the venereal matter, the sore being now nearly in the state of a simple ulcer from any other cause, would, with ordinary dressings, be very easily cured. Practitioners, however, are seldom called in so early, and frequently not till the different ulcerations are considerably enlarged, when the practice could not readily prove effectual, and when it might sometimes even be dangerous to apply, so extensively, to those tender parts on which chancres are commonly seated, such irritating remedies as any of the more active caustics.

What I have generally found to answer in every case of ulcerated chancre not attended with much inflammation, is, after wiping the sores as free from matter as possible, to sprinkle them well with mercurius precipitatus ruber finely prepared, and to apply a pledgit of any common oint-

ointment over all. This does not commonly occasion much pain or irritation ; and it has the effect of producing a kind of slough over the sore, which, in the course of a dressing or two, generally comes away, and leaves the ulcer perfectly clean.

Chancres being reduced to this state, would probably soon heal, although no other dressing should be used than common cerate ; but, lest any venereal matter should remain, I have commonly, after removing the dressings with the precipitate, been in the way of using the strong mercurial ointment of the Edinburgh Dispensatory, and to dress with it till the sores heal up.

In this manner all such ulcerations are in general easily cured, and with much less mercury given inwardly than if allowed for any considerable time to remain open.

By long continuance, however, and from neglect of proper remedies, even these, at first, seemingly simple sores, come to put on all the appearances of such ulcers as depend upon a general infection ; and as they

they are then really such in every respect, their treatment must vary accordingly.

Ulcers of this kind, upon the penis especially, when of long duration, are very apt to become inflamed; and then, by the pain they occasion, they prove frequently exceedingly troublesome. When the inflammation comes any considerable length, blood-letting is sometimes requisite; but, in general, that symptom is easily enough kept moderate, merely by a continued and proper use of the saturnine poultice.

The inflammation being once thoroughly removed, the best application, in all such cases, is simple wax ointment, as we have formerly mentioned, till a proper quantity of mercury has been exhibited, and then the sores commonly heal without any farther application.

There are two different modes in use of throwing mercury into the system; the one by giving it internally by the mouth, and the other by introducing it into the body through the absorbents on the skin by means of friction: But, as the last
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of these methods is by much the most troublesome and inconvenient, and as it does not, upon trial, appear to be attended with any superior advantages, the former is now, I believe, very commonly preferred.

Various forms of mercury have been contrived for internal exhibition; but those in which it has undergone no other preparation than simple triture, such as the quicksilver pill of the Edinburgh Pharmacopœia, are, in general, the best. They prove commonly more effectual, and are seldom attended with any of the inconveniences which often occur from the use of the different mercurial calces.

But whatever preparation of mercury be employed, it should always be continued till a soreness of the mouth be induced, that being the only certain indication of the medicine having entered the system: and it should never be carried further than is merely necessary to produce a moderate affection of the mouth, which is now found from experience to be productive

ductive of all the advantages, and none of the inconveniences which commonly attend a considerable salivation: it is not the quantity of salivary matter discharged that has any influence in the cure of venereal complaints, but the quantity of active mercury really introduced into the course of the circulation.

It is not always easy, however, to prevent mercury from running off too quickly by the mouth, so as sometimes to occasion very troublesome salivations. To guard against this circumstance by determining the medicine more particularly to the skin, the warm bath has been frequently recommended, both as a necessary preparation, and as a remedy which ought to be used along with the mercury. The same effects, we may remark, may in some degree be obtained, and with less risk to the patient from cold, by the use of a flannel shirt next the skin, and by drinking plentifully of decoction of sarsaparilla or of the woods; care at the same time being taken to keep the body in a proper temperature,
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and that it be never exposed to any considerable degree of cold. But whenever the warm bath can be conveniently and properly procured, it ought to be employed; for it commonly proves an useful assistant to a mercurial course: By preserving a soft skin and a free perspiration, it prevents the mercury from running with too much violence to the mouth; and nothing tends so certainly to prevent this medicine from affecting the bowels with gripes and other symptoms of colic.

A course of this kind being continued for a longer or shorter period, according to the degree of infection and violence of the symptoms, a cure of all such complaints is at last very commonly obtained.

In some instances, however, the quicksilver pill above recommended, either does not produce all the desired effects, or even fails altogether. On such occasions, the corrosive sublimate is frequently found to answer; and may be given either in the form of pills, or in the spirituous solution: the former, however, never proves so nauseous

feous as the latter, so that a larger quantity of the medicine may in that manner be commonly exhibited. The *mercurius calcinatus ruber*, is often found to answer in old venereal sores, when the usual forms of employing mercury have failed. In large doses of three, four, or five grains, it operates briskly both as an emetic and purgative: but small doses, especially when conjoined with opiates, are seldom productive of any inconvenience; and may, in general, be continued for a considerable length of time, without inducing salivation.

In very obstinate venereal ulcers, it becomes sometimes necessary to make trial of all the variety of mercurial preparations; and, on particular occasions, one will be found to prove very serviceable, though none of the others may appear to have had any influence.

The most certain rule for determining the quantity of the medicine to be exhibited, is, that it should be always continued for some time after every symptom

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of the disease has disappeared ; and that for a longer or shorter period, as the disorder may have been of long or short standing, and as the symptoms may have been inveterate or otherwise : but this very material circumstance in the cure of every venereal complaint, must be ultimately determined by the judgment of the practitioner in attendance.

Though by such a course of mercury given inwardly, with the necessary external treatment formerly pointed out, almost every ulcer of this nature may, as was observed, be in general removed, yet in some few instances it is otherwise ; and the sores cannot be brought to heal, even tho' the mercury be continued very long after every other symptom has disappeared, and when, from this circumstance, and from the quantity of the medicine exhibited, there is every reason to think that the venereal taint in the system is altogether eradicated.

As an ulcer, in this situation, cannot with propriety be considered as a venereal affection,

affection, it would be in vain to expect a cure from the use of any preparation of mercury whatever. Whenever such sores, therefore, show a greater obstinacy than what from their appearances might be expected, and especially when they do not yield in any degree to mercury, it gives great reason to suspect, that some other disease may probably have subsisted in the constitution together with lues venerea, and that both may have had some share in the production of the ulcers.

As soon as the nature of this conjoined disorder is discovered, proper remedies must be employed in order to correct it; and this being accomplished, the cure of the sores will, in general, go easily on.

On some occasions, however, venereal ulcers prove obstinate when the system appears to be perfectly free from every other disorder. In such cases, when the sores are seated upon or near to any of the bones, especially when fungous excrescences arise, there will commonly be reason to suspect that the cure is protracted by a

latent caries ; and if this is found on examination to be the case, and if the patient is in other respects healthy, there will seldom be reason to doubt, but that, by following the directions already given respecting the treatment of carious bones, and by a continuance of the mercurial course, a cure will at last be effected.

In some instances, again, when there is no reason, from the situation of the sores, to imagine that a caries can be the cause of their inveteracy ; and although there is no appearance either of scrophula, scurvy, or of any other disease of the constitution ; yet still they go on without showing any disposition to heal, and perhaps even become worse.

In such cases, when the system is much reduced by long confinement and a tedious course of mercury, which frequently indeed happens when a violent salivation has been long kept up, the best and most effectual remedy, in general, is a light nourishing diet, with the assistance of fresh air and moderate exercise ; which, by invigorating

vigorating the constitution, tend more certainly to promote a cure than all the medicines and applications commonly employed.

In all such circumstances, indeed, the effects of a change of this nature are often surprising; for the most obstinate ulcers, which have resisted every usual remedy, I have in various instances seen entirely cured, merely by such means as we have now mentioned. In this situation of these sores, too, the Peruvian bark, when taken in proper quantities, frequently proves very serviceable.

With respect to the external treatment of old sores of this kind, as the sloughs with which they are commonly covered render some degree of stimulus always necessary, common basilicon, with a large proportion of red precipitate, answers for this purpose exceedingly well. Two drachms of the mercury to an ounce of ointment, make very good proportions, and afford one of the best dressings for every ulcer of this nature: and when, by the use of such an

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ointment,

ointment, the sloughs have all cast off, and a discharge of proper matter has been induced, the treatment must afterwards be regulated according to the several circumstances already pointed out in the different preceding sections on local ulcers.

When any of the glands happen to be the seats of venereal ulcers, as it is always difficult to induce a kindly suppuration in them, it is sometimes necessary, before a cure can be obtained, to destroy the whole, or a considerable portion of such as are very much hardened. This is most conveniently and most easily done by reiterated applications of caustic: If the surface of the affected glands be rubbed over every third or fourth day with lunar caustic, so much of them as has been greatly diseased, may, in this manner, be soon destroyed; and the remainder, by proper attention to every other circumstance of the cure, being brought to furnish healthy granulations, the sores, without any farther difficulty, will soon be brought to heal.

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Although, in general, by attending to all these different circumstances as appearances may indicate, almost every ulcer of the venereal kind may at last be removed; yet, in long habitual and reiterated poxes, which have never been properly cured, the whole frame comes to be so contaminated with the infection, as, in some instances, to produce such an inveteracy in ulcers, as does indeed baffle all the efforts both of nature and art, and at last carries off the patients in very great misery. Some such instances I have seen in different hospitals, where probably such very obstinate cases are only met with.

SECTION XI.

Observations on the Scorbatic Ulcer.

§ 1. *General Remarks on Scurvy.*

IT was remarked in a former section, that, under the appellation of Scorbatic Ulcer, there have in general been ranked a great many of those eruptive diseases to which the skin is liable, as the itch, several species of lepra, &c. But the real nature of true scurvy being now much better understood, and it being known that no such symptoms as eruptions of that kind ever occur in it, the impropriety either of applying the term Scorbatic to such, or of treating them as symptoms of that disease, must appear exceedingly evident.

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We have already remarked, that ulcers which proceed from any of the above mentioned eruptive disorders, are probably connected with a very opposite state of the system to that which takes place in those really scorbutic: The former generally, if not always, we suppose to depend upon an inflammatory diathesis; whereas, in true scurvy, the fluids arrive at probably the highest degree of dissolution and putrefaction of which in the living body they are susceptible. We know that doubts have been entertained of this point; but they will not be readily admitted by those who have had opportunities of attending cases of real scurvy.

From the writings of several old authors, it appears, that scurvy was a well-known disorder some ages ago; but the true causes, symptoms, and method of treatment of the disease, were never very accurately understood till Dr Lind's publication on the subject appeared.

The several species of scurvy enumerated by authors, viz. the Muriatic, the Alkaline, &c. so named from the nature of the
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the causes supposed to produce them, are now known to be very false and improper distinctions; the true scurvy being always of the same nature, and always produced by the same causes, wherever these occur, in whatever climate, and whether at sea or land.

§ 2. *Symptoms and Causes of the Scorbatic Ulcer.*

AMONG other symptoms of scurvy enumerated by Dr Lind in his ingenious treatise on this subject, the ulcers which are so common in that disease are particularly described; and as he gives a very clear and distinct idea of them; we shall here transcribe verbatim the Doctor's description of them.

“The distinguishing characteristics of scorbutic ulcers are as follow: They afford no good digestion; but a thin fetid sanious stuff, mixed with blood; which at length has the true appearance of coagulated gore lying caked on the surface of the ulcer,
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and is with great difficulty wiped off or separated from the parts below.

“ The flesh underneath these sloughs feels to the probe soft or spongy, and is very putrid. No detergents or escharotics are here of any service ; for though such sloughs be with great pains taken away, they are found again at next dressing, where the same sanguinous putrid appearance always presents itself : Their edges are generally of a livid colour, and puffed up with excrescences of proud flesh arising from below under the skin.

“ When too tight a compression is made in order to keep the fungus from rising, they are apt to leave a gangrenous disposition ; and the member never fails to become oedematous, painful, and for the most part spotted.

“ As the disease increases, they at length come to shoot out a soft bloody fungus, which the sailors express by the name of Bullock's Liver ; and indeed it has a near resemblance to that substance when boiled, both in colour and consistence. It often
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rises in a night's time to a monstrous size ; and, although destroyed by cauteries, actual or potential, or cut smooth with a bistoury, in which case a plentiful hæmorrhagy generally ensues, it is found at next dressing as large as ever. They continue, however, in this condition a considerable time, without affecting the bones.

“ The slightest bruises and wounds of scorbutic persons degenerate into such ulcers : Their appearance, on whatever part of the body, is so singular and uniform ; and they are so easily distinguished from all others, by being so remarkably putrid, bloody, and fungous ; that we cannot here but take notice of the impropriety of referring most of the inveterate and obstinate ulcers in the legs, with very different appearances, to the scurvy *.”

This accurate description of the scorbutic ulcer comprehends almost the whole appearances ever observed in such affections. Only it may be remarked, that at land, unless in very particular situations,
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* See Lind's Treatise on the Scurvy.

and from a constant exposure to all the more active causes of scurvy, such inveteracy as is described by Dr Lind is not often met with : But in every country, and none, perhaps, more frequently than in some parts of this kingdom, slighter degrees of the same kinds of sores very often occur, forming what by practitioners in general are termed Foul or Malignant Ulcers.

In the Royal Infirmary of this place, sores of this kind are frequently met with, accompanied sometimes with even the most characteristic symptom of scurvy, soft spongy gums. In the worst cases, however, that I ever met with here, there never was the appearance of such a high degree of putrescency in the system as we are told happens frequently in long voyages at sea.

The reason of this may be, that such complaints of the scorbutic kind as occur in this country, appear generally among the lowest class of people, and proceed rather from the want of a sufficient supply of food,
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than from confinement to any one kind that can be at all considered as particularly septic, or as predisposing to scurvy.

In such patients, the putrid diathesis seldom ever prevails to such a degree as to produce ulcers in parts previously sound; but it never fails to show itself in ulcers either already formed, or in such wounds as happen to be inflicted while such a state of the fluids subsists. Indeed very many of the ulcers upon the legs, and other parts of the generality of our poor people, frequently partake, more or less, of the real scorbutic taint; as is evident both from their appearances, causes, and particularly from the method of cure that is found to succeed best; a good nourishing diet contributing more towards a cure, than all the applications usually employed.

The immediate or proximate cause of such ulcers, as of every other scorbutic symptom may be referred to a certain degree of putrescency in the fluids; which again may be induced by a variety of causes, but of which the most material are,

are, living constantly upon salt provisions; a total want of vegetables; with exposure to a cold moist atmosphere. Many other exciting causes of the disorder might be mentioned; but as this would lead to a more extensive discussion of the subject than is here intended, for farther information, Dr Lind, Sir John Pringle, Huxham, and other authors who treat more directly on the subject, may be consulted.

§ 3. *Of the Cure of the Scorbutic Ulcer.*

THE cure of scorbutic ulcers, it is evident, must depend much upon the correction of the putrid diathesis in the system; for which purpose vegetables of all kinds, but especially those of an acescent nature, with milk and whey, are found to be almost certain remedies. The different secretions, especially those by the skin and kidneys, should be gently promoted: and as the former in a particular manner is almost entirely obstructed in every case of scurvy, the restoring of a due perspiration is found to have a considerable influence
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in the cure; probably by carrying off many of the putrid particles with which the fluids in such cases always abound. Gentle laxatives too, for the same reasons, are of use; and, as such, Tamarinds and Cream of Tartar with Manna answer well.

These, together with a total abstinence from salted food, and a proper attention to avoid all the other exciting causes of the disease, very commonly effect a cure of every scorbutic symptom, and among others, of such ulcers; the best external applications for which are antiseptics of the most powerful kinds. Lind recommends Unguentum *Aegyptiacum*, and Mel *Rosarum* acidulated with *Spiritus Vitrioli*.

These in general are the remedies found most effectual, and which are commonly employed in very bad cases of scurvy; but in such putrid ulcers as occur most frequently in this country, the septic state of the fluids, as we have observed above, seldom advances to such a high degree, as to render it particularly necessary to confine
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patients to what may properly be called an antiscorbutic course.

The common malignant or scorbutic ulcer of this climate seeming, as was already remarked, to proceed more frequently from a real deficiency of food, than from any other circumstance; putting the patients by degrees upon a full allowance, with a daily, though moderate, proportion of some generous wine, has always a powerful effect in promoting their recovery.

This, we must observe, is a point of more importance in the treatment of these ulcers than is commonly imagined, and the attention of practitioners ought to be more directed to it than is generally the case. Instead of prescribing medicines for the cure of such ulcers, much more advantage would be derived from a well-regulated nourishing diet; and especially when to this is conjoined, as we have said, a moderate proportion of wine, or, what I have frequently imagined has answered better, a proper allowance of porter or strong beer. The foul old ulcers of poor people

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in every country are most frequently induced by indigence, and are kept up by a real want of nourishment. In all such cases, therefore, the practice of hospitals would probably prove more beneficial, by laying the use of internal medicines almost totally aside; and by employing the savings thus produced, in furnishing such a diet as we have been here recommending.

The Jesuits bark, however, is a remedy which, in ulcers of this kind, proves frequently useful: it commonly indeed proves more serviceable here than in any other species of sore. When given in proper quantities, which are always to be determined by the state of the stomach, it seldom fails of producing, in the course of a few days, a considerable change for the better. For such scorbutic ulcers as occur in this country, the bark indeed is almost the only internal medicine that is ever necessary.

With respect to the use of mercury in these kind of sores, it ought always to be kept

kept in view, that in ulcers really scorbutic, instead of acting as a remedy, if given in any considerable quantities, it proves always extremely hurtful. Lind, from a great deal of experience, says, with respect to this point: "Mercury, in a truly scorbutic ulcer, is the most pernicious medicine that can be used *." So that a proper distinction between sores of this nature, and the several eruptive disorders commonly termed Scorbutic, appears in the treatment to be a matter of considerable importance: in the latter, mercury may not only be generally given with impunity, but in some instances with advantage; whereas, in the former, it can never be administered but with very great hazard.

Peruvian bark, as an external application, too, answers exceedingly well in all such ulcers; pledgits dipped in a strong decoction of it, and applied to the sores, have generally a considerable effect in correcting the fetor and putrescency of the discharge: But the best application for that purpose,

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* Vide Treatise on the Scurvy, Part II. chap. ii.

in these ulcers, is the carrot poultice, which when conjoined with the internal use of bark, and a proper regimen, in the course of a short time, generally corrects the putrescency which prevails, so effectually, that the sores being dressed for a few days longer with pledgits of basilicon and red precipitate, with a view to procure the removal of any sloughs that remain, a cure is afterwards commonly easily obtained, merely by attending to the directions formerly laid down for the management of ulcers in general, and particularly to the introduction of an issue, along with moderate compression by means of a roller.

What has hitherto been said with regard to the treatment of scorbutic ulcers, applies, in a great measure, with equal propriety, to all such sores as are in the least connected with a putrescency of the fluids, from whatever causes this may have been induced. Thus, such sores, as remain after critical abscesses that succeed to putrid fevers, require the same general method of treatment : and the same may very probably

bly be found to be the most effectual in those produced by pestilential disorders; though, as I never had an opportunity of seeing the real plague, I cannot from experience venture to assert it.

SECTION XII.

Observations on the Scrophulous Ulcer.

§ 1. *Of the Symptoms and Causes of the Scrophulous Ulcer.*

BY scrophulous ulcers, are meant those sores which remain after the opening or bursting of such swellings as appear in different parts of the body as symptoms of the scrophula or evil.

From the frequent occurrence of scrophula, it is such a well known disease, that it is almost unnecessary here to give any

description of it. It begins with indolent, somewhat hard, colourless tumors; which at first chiefly affect the conglobate glands of the neck; but, in process of time, the cellular substance, ligaments of the joints, and even the bones themselves, come to suffer.

In scrophula, the swellings are much more moveable than those of the scirrhus kind; they are generally softer, and seldom attended with much pain: They are tedious in coming to suppuration; are very apt to disappear suddenly, and again to rise in some other part of the body. We may likewise mention, as characteristic circumstances of this disease, a remarkable softness of the skin, a kind of fulness of the face, with generally large eyes, and a very delicate complexion.

Ulcers which appear in scrophula seldom yield a good discharge; affording, upon their first appearance, a viscid, glairy, and sometimes a whitish curdled matter, that afterwards changes into a more thin watery sanies. The edges of the sores are
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frequently, though not always, painful; and are constantly very much raised or tumefied. As long as the scrophulous diathesis subsists in the constitution, such ulcers very often remain for a great length of time, without showing any disposition either to heal or to turn worse; at other times they heal very quickly, and again break out in some other part of the body.

A variety of causes have been mentioned as tending to produce scrophula; namely, a crude indigestible food; bad water; living in damp low situations; its being an hereditary disease, and in some countries endemic.

Many other causes, too, have been enumerated by authors; but we cannot propose to enter into a full consideration of them here. This, however, may be observed, that whatever may, in different circumstances, be the exciting, or predisposing causes of scrophula, the disease itself either depends upon, or is at least much connected with, a debility of the constitution in general, and probably of the lymphatic system.

stem in particular; the complaint always first shewing itself by some affections of the latter. And that debility has at least a considerable influence in its production, is probable, not only from the evident nature of many of the causes which are known to be productive of scrophula, but likewise from such remedies as are found to prove most serviceable in the cure, which are all of a tonic invigorating nature.

§ 2. *Of the Cure of the Scrophulous Ulcer.*

It was long supposed, that scrophula depended upon an acid acrimony of the fluids; and this, it is probable, gave rise to the use of burnt sponge, different kinds of soap, and other alkaline substances, as being the best correctors of acidity. But although a sourness of the stomach and primæ viæ is a frequent symptom in scrophula; yet this ought not by any means to be imputed to a general acescency of the fluids, but merely to that relaxation which so universally prevails in this disease, and this especially as it often occurs in other diseases where

where no such acrimony has been ever suspected.

There is another circumstance, too, which renders it still more probable that no kind of acrimony whatever exists in scrophula, namely, the very long continuance of matter collected in the different swellings which occur in this disease, without occasioning either much pain, or showing any tendency to corrode the surrounding parts; there being many instances of such collections subsisting, even for years, without exciting any kind of uneasiness: And in fact, the several remedies recommended for the correction of such an acrimony as has been supposed to exist in scrophulous complaints, never have, at least so far as I have seen, any influence in the cure.

Gentle mercurials are sometimes of use, as resolvents, in scrophulous swellings; but nothing has ever such a considerable influence as a frequent and copious use of Peruvian bark. Chalybeate and sulphureous waters, too, have frequently proved serviceable

viceable in scrophula ; and a long and continued use of mild aperients of the saline kind has likewise had some influence in resolving such tumors as occur in it. Cold bathing, too, especially in the sea, together with frequent moderate exercise, is often of singular service; as is likewise change of air, particularly to a dry climate.

With respect to the treatment of scrophulous ulcers, as long as the general morbid diathesis continues in the system, it is commonly in vain to attempt their cure: Nor would it, indeed, be always safe; as the sores, when dried up in one part, very commonly break out somewhere else; and they just as readily fall upon the lungs, or some organ essential to life, as on any other part.

Such instances, indeed, are very frequently met with, whether the sores heal up naturally or by the assistance of art: We should therefore be very cautious in the application either of repellent or of drying remedies; and should chiefly endeavour to correct the general disease of the
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the habit, by the use of such strengthening remedies as are commonly found to prove most useful.

Till the disease is eradicated from the habit, all that should in general be done to the sores, is to give as free and open vents to the matter as possible, so as to prevent effectually the formation of sinuses.

The best applications for scrophulous ulcers, are the different saturnine preparations: of which the watery solution of *Saccharum Saturni*, Goulard's Cerate, and *Unguentum Saturninum*, answer exceedingly well; for they tend greatly to prevent the spreading of scrophulous sores, which is otherwise very apt to occur, and to remove that inflammatory complexion which they so frequently put on when relaxing applications are much employed.

A continuation of such simple dressings as these we have recommended, is all that, in general, should be attempted, so long as any disorder of the constitution is found to remain. But, in some cases, the ulcers become swelled and painful; they discharge

charge an acrid and corrosive matter ; and grow otherwise so inveterate, as to render other resources necessary.

When these circumstances occur, a carious bone may frequently be suspected to be at the bottom of the sore ; and then nature must be assisted, as much as possible, in throwing off such parts of it as are most diseased, and that are become loose. This, in many situations, may be easily done : but when the complaint fixes on any of the large joints, art can seldom afford much assistance ; and as amputation of the member is not, in these circumstances, always adviseable, from the great risk of the disease returning in some other part, nature alone must generally be trusted to for a cure.

In such a situation, therefore, as no operation can be expected to contribute much to the removal of the disorder, the most effectual means should be adopted for assisting nature in getting the better of it. With this view, a continued use of sea-bathing often proves very serviceable : but this remedy,

medy, in order to have any considerable effect, should be continued, with proper intervals, for a number of years, instead of a few weeks annually, which is all that is commonly thought necessary.

The bark, as formerly directed, should still be continued; and I have sometimes observed very good effects from a conjunction of it with cicuta, particularly in procuring a proper discharge from scrophulous sores.

When, in course of time, and by proper attention to the different circumstances we have mentioned, there is reason, from the sores showing a tendency to heal, to hope that the general morbid disposition of the system is pretty much eradicated, nature is always greatly assisted in the cure, and that too is rendered much more safe, by the introduction of an issue somewhat proportioned to the discharge yielded by the different sores, and which, when the ulcers have been of long duration, should certainly be continued for life.

Gentle compression has, in the several preceding

preceding sections, been recommended for different kinds of ulcers ; but in no species of sore is it either so evidently indicated, or of so much real utility, as in scrophulous ulcers : in which that swelling and tumefaction, which frequently raise their edges to very considerable heights, often prove a greater hindrance to the cure than any other circumstance ; and which, when no considerable inflammation occurs, may always, by gentle compression, be easily and safely removed.

Such, in general, is the treatment which answers best in scrophulous ulcers : but as the scrophula is one of those diseases for which art has not as yet discovered any effectual remedy, I have not attempted more than to point out as concisely as possible those means by which nature is best assisted in her efforts towards a cure.

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SECTION XIII.

General Corollaries relating to the Management of Ulcers.

HAVING endeavoured, in the preceding sections, to investigate every point of importance relating to the different species of ulcers, it will not in this place be considered as improper, our exhibiting, by way of conclusion, such general corollaries as naturally result from what has been said.

1. It appears, that, except in a few instances, namely, in Lues Venerea, Scrophula, and Scurvy, that ulcers are always to be considered merely as local affections.

2. That, excepting in one or other of the abovementioned disorders, the varieties in the matters discharged by ulcers depend

pend always on some particular affection of the solids in the part diseased, and not on any morbid state of the blood or other fluids.

3. That ulcers appear to be useful or prejudicial to the constitution, not by the quality of the matter afforded by them, but by the quantity: And accordingly, that the cure of even the oldest sore is rendered perfectly safe by the introduction and preservation of such an issue as will yield the same quantity of fluids which the system has, by means of the ulcer, been accustomed to throw off.

4. That, in the cure of ulcers, the first circumstance to be determined, is, whether they are to be considered as general or topical complaints. If they appear to be of the former kind, such remedies must be administered as are known to be most effectual for the correction of the disease with which they happen to be connected; in other respects, the treatment of such sores is nearly the same with those originally of an unmixed simple nature.

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5. That, in the topical treatment of ulcers of every kind, the principal object to be kept in view, is; to reduce them as nearly as possible to the state of simple purulent sores; for which purpose the different remedies have been pointed out in the several preceding sections.

6. That when ulcers are once reduced to the simple state above-mentioned, their farther treatment, in general, becomes a very easy matter; as the cure is then to be entirely effected by a proper attention to the three following circumstances.

1st, To the introduction of an issue, as was lately observed, of such a size as may carry off nearly the same quantity of fluids which the system has, by means of the fore, been accustomed to throw off.

2d, To the preservation of the matter in a purulent form, the several means for which have been already fully pointed out; but the principal of these, it may be remarked, are, The avoiding every kind of irritation, by using the mildest dressings only; and preserving, in the parts affected, a proper degree of heat.

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3d, To

3d, To the application of gentle compression, not only upon the ulcer itself, but on the neighbouring sound parts also.

We have taken various opportunities, in the course of this work, to recommend the application of pressure in the cure of ulcers. In addition to what we have already said upon this point, we think it necessary to observe, that this remedy is not as yet sufficiently known, otherwise it would be more generally employed. Those who have not seen it used, would scarcely give credit to the accounts we could give of its universal utility in the cure of sores; but from much experience of its effects in almost every species of sore, we can venture to assert, that those who have not employed it, have deprived their patients of the most powerful application which has hitherto been invented for the cure of ulcers.

These are, in short, the principal circumstances to be kept in view in the management of ulcers; and which, in different parts of the preceding sections, have been more fully explained.

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CHIRURGICAL
ESSAYS.

PART III.

Observations on WHITE SWELLINGS of
the JOINTS.

SECTION I.

*Of the Symptoms and Causes of White
Swellings.*

§ 1. *General Remarks on White Swellings.*

THERE are not, probably, many disorders to which the human body is liable, which prove either of worse consequences to patients, or that are less un-

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derstood

derstood by practitioners, than white swellings of the joints; infomuch that, whenever the disease is thoroughly formed, it is in general considered as incurable.

This ought certainly to be a very strong inducement with every practitioner for carrying his researches with respect to it as far as possible; and will, it is hoped, be a sufficient apology for the following observations; which, merely by pointing out defects, although no material improvement should be suggested, may excite others to more successful inquiries. If this should, in any degree, be the result of the following remarks, I shall always consider the time bestowed on them as having been usefully employed.

The term White Swelling has commonly been applied to such enlargements of the joints as are not attended with external inflammation or discolouration of the skin and common teguments; the only symptoms which at first commonly take place, being a greater or less degree of swelling, with a deep-seated pain. In the progress of the disease, indeed, the whole

whole surrounding parts come to be so much affected, that inflammation is at last communicated to the skin itself; and when this terminates in abscesses and consequent ulcerations, it is not at all uncommon to find a great many openings surrounding the whole joints that are so diseased.

Though there are, by different writers, several detached observations upon this complaint*; yet no regular account has ever been given of it, farther than what may be met with in general dissertations on diseases of the bones, which have always been considered as the principal seat of such disorders.

§ 2. Different Species of White Swellings.

THERE seem evidently to be two different species of white swellings, entirely
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distinct

* See *Monro's Works*, 4to, Edin. 1781, p. 460. and a paper by Dr Simpson in Vol. IV. of *Edinburgh Medical Essays*.—See also a paper on this subject, inserted in a *Collection of Pathological Inquiries and Observations in Surgery*, by Richard Brown Cheston, Surgeon to the Gloucester Infirmary.

distinct from one another ; and as the one is of a much milder nature than the other, and very frequently admits of palliation, and sometimes even of complete cures, which the other never does, it would seem to be a matter of importance so to characterise the different varieties, that the one may be easily and certainly distinguished from the other.

In this, however, as in many other diseases, the complaint has frequently been of considerable standing before practitioners are called in : So that although, if seen from the beginning, and through all its different stages, it might generally be easily enough known of what particular nature the disorder in reality is ; yet, when it is far advanced, and when an exact history of the symptoms cannot be obtained from patients themselves, it is often impossible to make any accurate or certain distinction ; the symptoms of both species being in the latter stages of the disease commonly very similar.

When this, however, is not the case, and a practitioner is called in before the symptoms

toms have made any great progress, he may commonly, with a little attention, form almost a certain judgment of the nature of the complaint. And, as I have had many opportunities of seeing every species of the disorder, in all its stages, I propose, first, To give as exact an account as possible of the rise and progress of the different symptoms in each species; then to mention the several appearances of the joints, which in each of them are observed on dissection, with the most common exciting and predisposing causes of the disorder; and, lastly, I shall enumerate the different remedies that I have known used for it, with their several effects.

Swellings of this nature, it may be remarked, occur in every joint of the body; but much more frequently in the large than in the smaller joints: Thus, at least, twice as many are met with in the knee and ankle joints, as in all the rest of the body besides.

§ 3. *Of the Symptoms of the first, or Rheumatic Species of White Swelling.*

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as the most simple, species of the disease, begins with an acute pain, which seems to be diffused over the whole joint, and frequently even extends along the tendinous aponeurotic expansions of such muscles as are connected with it. There is, from the beginning, an uniform swelling of the whole surrounding teguments, which in different patients is in very different degrees; but it is always so considerable as to occasion an evident difference in point of size between the diseased and sound joint of the opposite side: A considerable tension generally prevails; but there is seldom, in this period of the disorder, any external discolouration.

The patient, from the commencement of the disease, suffers much pain from the motion of the joint; and always finding it easiest in a relaxed posture, keeps it accordingly constantly bent; which generally in every situation, but more especially in the knee, produces a stiffness or kind of rigidity in all the flexor tendons of the limb.

This rigidity of the tendons has by
many

many been considered as an original symptom of the disorder; but when duly attended to, it will always be found to be rather a consequence of the disease, and to have arisen from the above-mentioned cause. In consequence, too, of the total want of motion, which from this circumstance is always produced, such joints in a very short time generally become quite stiff and immoveable, and seem frequently to be in a state of complete and real ankyloses.

If the disorder, either by nature or by the effects of proper remedies, is not now carried off, the swelling, which originally was not perhaps very considerable, begins gradually to augment, and goes on till it sometimes increases to twice, or even thrice the natural size of the part.

The cuticular veins become turgid and varicose; the limb below the swelling decays considerably in its fleshy muscular substance, at the same time that it frequently acquires an equality in point of thickness, by becoming œdematous; the pain turns more intolerable, especially when

when the patient is warm in bed or is otherwise heated; and abscesses form in different parts of the swelling, and run in all different directions, whilst at the same time they frequently do not appear to communicate with one another.

In all these abscesses, a fluctuation of a fluid, upon pressure, is generally evident, as is the case in every collection of matter not very deep seated; but, independently of the fluctuation, all such swellings afford a very peculiar elastic feel; yielding to pressure, at the same time that they do not, like œdematous swellings, retain the mark, but instantly rise again as soon as the pressure is removed.

These different collections, either upon breaking of themselves, or on being laid open, discharge considerable quantities of matter, which at first is generally purulent, and of a pretty good consistence: it soon, however, degenerates into a thin fetid ill-digested sanies; and has never, at least in proportion to the quantity discharged, any remarkable influence in reducing the size of the swellings, which
still

still retain nearly their former dimensions.

If the orifices from whence such matters flow are not by art kept open, they very soon heal up; and new collections forming in different parts, again break out and heal as before; So that, in long-continued disorders of this kind, the whole surrounding teguments are often entirely covered with cicatrices that remain after such ulcers.

Long before the disorder has arrived at this state, the patient's health has generally suffered considerably; first, from the violence of the pain, which is often so great, as to take away entirely both sleep and appetite; and then, from the absorption of matter into the system, which always takes place in some degree from its first formation in the different abscesses; but which, indeed, never appears so evidently, till the several collections either burst of themselves or are by incision laid open; when a quick pulse, night-sweats, and a weakening diarrhoea, always certainly occur; and generally, at last, carry off the patient,

patient, if the member be not amputated, or if a cure of the disorder be not otherwise effected.

These are the several symptoms of this species of white swelling, in all its different stages. We shall now, as was proposed, enumerate the appearances which in general are observed on dissecting such swelled joints after amputation of the member.

§ 4. *Appearances observed on Dissection, in the Rheumatic Species of White Swelling.*

IN some cases, the pain, even in this species of the complaint, is from the beginning so violent, that practitioners are led at once to conclude it to be of the worst and most incurable kind: And patients, rather than suffer a long continuance of such a torment, as it is often attended with, and after all remain uncertain whether a cure is to be obtained, frequently prefer the immediate amputation of the member.

Several such instances I have seen, where the operation has been performed in very early periods of the disorder. In all of these,

these, the only preternatural affection observed on laying open the swellings, was, a considerable morbid thickness of the surrounding ligaments, without any disease of the joint whatever; the bones and cartilages always remaining perfectly sound, and the synovia in a natural condition both as to quantity and consistence.

This thickening of the ligaments, tho' in general it appears in a greater or less degree according as the complaint has been of longer or shorter duration, yet we do not find that it always does so; for in some recent instances, the ligaments have appeared more diseased than in others where the disorder had continued longer: In the former, indeed, the symptoms were always found to have been very violent.

In the more advanced stages of the disorder, when abscesses have formed in different parts; when the pain has been long very violent, with great addition of swelling; on laying open the parts, the thickening of the ligaments is then found to be more considerable, and is generally, if not always, attended with an effusion, into the fur-

furrounding cellular substance, of a thick glairy matter, which appears to be the cause of that elastic feel peculiar to such swellings formerly taken notice of in the description.

The different abscesses or collections of matter are found to run in various directions through this glairy albuminous congestion, without, however, seeming to mix with it. In some few instances, again, together with collections of pus, a great many small hydatides are observed; and in the farther progress of the disorder, all these together form such a confused mass of different matters and substances, that it is almost impossible, by dissection, to procure a more distinct view of them, than what presents itself on their first being laid open.

Even all these appearances I have met with, without any affection of the bones of the joint; which, together with the furrounding cartilages, upon cutting thro' the capsular ligaments, remained perfectly found.

When, however, by a very long continuance

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nuance of the complaint, these ligaments come to be corroded by the different collections of matter, the cartilages, and in consequence the bones, are very soon brought to suffer; the latter becoming carious, as soon as the former, by the acrimony of the matter, have been abraded.

The tendons of the flexor muscles, which are always in this disease, as was already mentioned, very stiff and much contracted, do not, upon dissection, exhibit any evidently morbid appearances, either with respect to hardness or enlargement. We shall now, as was proposed, give a description of the other species of the disorder.

§ 5. Of the Symptoms of the more inveterate or Scrophulous Species of White Swelling.

IN this species of the disease, the pain is generally more acute than in the other; and, instead of being diffused, it is more confined to a particular spot, most frequently to the very middle of the joint.
In

In some instances I have known the patients say, they could cover the whole pained part with a crown-piece or less.

The swelling is at first commonly very inconsiderable; in so much that, on some occasions, even when the pain has been very violent, little difference, in point of size, could be observed between the diseased joint and the opposite sound one.

In this, as in the other species of the disease, the least degree of motion always gives very great pain: so that the joint being here too constantly kept in a bent position, stiffness and rigidity of the tendons come likewise soon to be produced.

As the disorder advances, the pain turns more violent, and the swelling becomes more considerable, with an evident enlargement of the ends of such bones as compose the joints.

In process of time, the tumor acquires that elastic feel formerly taken notice of, varicose veins appear over its surface, and collections of matter occur in different parts of it: These, upon bursting or being laid open;

open, discharge considerable quantities sometimes of a purulent-like matter, but most frequently of a thin fetid sanies; and if a probe be introduced, and can be passed to the bottom of the sores, the bones are found carious, and pieces of them are often discharged at the openings.

On the farther continuance of the disorder, the constitution comes here likewise to suffer as in the first species of the disease; and a diarrhoea with night-sweats commencing, the patient, though naturally perhaps of the fullest habit, is reduced by loss of flesh to the most extreme weakness.

§ 6. *Appearances observed on Dissection, in the Scrophulous Species of White Swelling.*

WHEN such joints are dissected, either after death, or after amputation of the member in the first stages of the disorder, the soft parts seem to be very little affected: but in all, even the slightest that I had ever an opportunity of seeing, there was constantly observed, an enlargement either of the whole ends of the bones, or of their

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epiphyses ; frequently of those on one side of the joint only ; in others, again, the bones on both sides have been affected.

This enlargement sometimes occurs without any other evident disease : but in general, and always in a more advanced state of the complaint, the soft spongy parts of such bones are found to be dissolved into a thin, fluid, fetid matter ; and that too, in some cases, without the cartilages which surround them seeming to be much affected. In process of time, however, the cartilages come likewise to be dissolved ; and then the different matters, namely, the dissolved bones and softer parts, mixed all together, exhibit, when such swellings are laid open, a still more confused collection than is generally observed even in the worse stages of the other species of the disorder.

Although it was remarked, that in the early periods of the complaint, the surrounding soft parts do not always appear to be much affected ; yet, in its farther progress, they likewise are generally brought to suffer. The ligaments become thickened,

ened, and the contiguous cellular membrane filled with that viscid glairy kind of matter we mentioned when speaking of the other species of the disorder.

§ 7. *Of the Causes of White Swellings of the Joints.*

HAVING thus given a particular account of the different appearances generally observed in both species of white swelling, we come now, in course, to the consideration of the different causes which tend to produce them: And, to go on in the same order with the descriptions that have been given, we shall first enumerate those that are particularly connected with that which we termed the first or rheumatic species of the disorder.

All such strains may be mentioned as causes, as particularly affect the ligaments of the joints, so as to produce inflammation; likewise bruises, luxations of the bones, and in short every derangement which can in any degree be attended with that effect.

A rheumatic disposition, or Diathesis as it is termed, may here too be taken notice of as a principal cause of this species of white swelling; for, in every rheumatic affection, the parts most liable to be attacked are the ligaments of the joints, and other deep-seated membranes. The disorders occurring most frequently in the large joints, especially in the knee, is a strong argument too for supposing that the rheumatic disposition has a considerable influence in its production; for it is well known, that rheumatism, in its most evident form, does really more frequently attack the larger joints than any of the smaller: And, in fact, we find this species of white swelling occurs more frequently in young plethoric people, in whom the rheumatic diathesis most frequently prevails, than it ever does in those of an opposite temperament.

That it is the ligaments of the joints only which are first affected in this disorder, is from the history of the dissections rendered evident; these, in the first stages of the complaint, being almost the only
parts

parts that are found diseased. The effusions, into the cellular membrane, of that thick glairy matter we have taken notice of, are probably occasioned by an exudation from the vessels of those ligaments that have been originally inflamed, as it is known that such parts never furnish a proper fluid for the formation of purulent matter: In the course of the disease, indeed, abscesses containing real pus do always appear; but never till inflammation has been communicated to the surrounding parts, which more readily afford a fluid proper for this purpose.

I would therefore, upon the whole, conclude, that this species of white swelling is at first always occasioned by an inflammatory or rheumatic affection of the ligaments of such joints as it attacks, from whatever cause such inflammation may originally have proceeded.

The other species of the disorder, from all the symptoms enumerated, and from the different appearances on dissection, seems evidently to be originally an affection of the bones; the surrounding soft parts com-

ming only to suffer in the progress of the disease, from their connection with and vicinity to these.

This species of white swelling very seldom occurs as the consequence of any external accident. It generally begins without the patient's being in the least able to account for it. From the effects usually produced on the bones which it attacks, it would appear to be a species of the real *spina ventosa*; and which, again, is very probably a disease of the same nature in the bones that *scrophula* is of the soft parts. Indeed, the appearances of the two disorders, after making allowances for their different situations, are exceedingly similar; they both begin with considerable enlargements or swellings of the parts they invade; which afterwards in both, too, generally end in evident ulcerations; and they both likewise frequently occur in the same person, and at the same time.

It is likewise observed, that this species of white swelling is generally either attended with other evident symptoms of *scrophula* subsisting at the time; or that the patient

patient in an earlier period of life has been subject to that disease ; or, what is nearly the same, that he is descended from scrophulous parents, and consequently most probably has the seeds of that disease lurking in his constitution.

From all these circumstances, it may I think with probability be concluded, that this species of white swelling is commonly, if not always, of a scrophulous nature : And as it has already been shown, that the other species of the disorder is to be considered as an inflammatory, or what we have termed a Rheumatic, affection ; and a thorough distinction of the two different species being, in the treatment, a matter of much importance ; it will not here be improper to give a short enumeration of the several diagnostic or most characteristic symptoms of each.

§ 8. *Diagnosis.*

THE pain in the white swelling from a rheumatic disposition, is always, as was formerly remarked, from the beginning, diffused over the whole joint, and on some

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occasions

occasions extends even a considerable way along the muscles that are attached to it: Whereas, in the other species of the disorder, the pain is not only always at first, but sometimes even when the complaint has been of considerable standing, confined to a very small circumscribed space.

In the former, the swelling is always confined to the soft parts, and is from the beginning exceedingly evident: but, in the latter, there is seldom for some time any perceptible swelling; and when it does more sensibly appear, the bones are found evidently to be the parts chiefly affected, the surrounding teguments coming only to suffer on the further progress of the disease.

These are the chief local differences of the two species of this disorder; but some assistance in the distinction may likewise be obtained, from considering the general habit of the patient, and the manner in which the complaint may seem to have been produced.

Thus, when such swellings occur in young, strong, plethoric people, and especially

cially in those who have formerly been subject to rheumatism ; whether they have been the immediate consequences of external accidents or not, they will most probably always prove to be of the mildest or rheumatic species of the disorder.

Whereas, when swellings of this nature appear in such patients as are otherwise evidently of scrophulous dispositions ; where, together with a fine skin and delicate complexion, there are either, on examination, found to be hardened glands in the neck, arm pits, or inguina ; or it is discovered that the patient may be liable to such complaints from inheritance ; when either any or all of these circumstances occur, and if the disorder has begun in the manner formerly described, without any evident external cause, we need be under very little doubt in concluding it to be of a scrophulous nature.

The great utility of properly distinguishing the two different species of white swelling appears in no circumstance so evident as in the treatment : In the one, there is some chance, by proper remedies, of being
fer-

serviceable to the patient ; whereas in the other, viz. in the scrophulous, it is not probable that art will ever be able to afford much assistance.

SECTION II.

Of the Treatment of White Swellings.

§ 1. *Of the Effects of an Antiphlogistic Course in the Rheumatic Species of White Swelling.*

IN the rheumatic white swelling, as it is always at first evidently of an inflammatory nature, considerable advantages are commonly obtained by a due attention to a proper antiphlogistic course.

The first remedy which, with this view, should be employed, is blood-letting ; but, instead of general evacuations from the arm or elsewhere, it proves always more effectual

effectual to take the blood immediately from the part affected. Cupping and scarifying is here a principal remedy. The instrument should be applied to each side of the diseased joint ; on each side of the rotula, for instance, when the knee is the part affected ; at least eight or ten ounces of blood should be discharged ; and this should be repeated at proper intervals, once, twice, or oftener, according to the violence of the symptoms and state of the patient's strength at the time.

In the ordinary way of discharging only an ounce or two of blood by this operation, it has, in general, very little or no influence ; but in the quantities mentioned, which, by those accustomed to the practice, are commonly easily obtained, it is most frequently attended with very considerable effects.

It must here be observed, that cupping is in these cases much superior to the application of leeches ; which is not only a more tedious method of procuring the same quantity of blood, but the swelling occasioned by the application of any considerable

able number of them proves frequently very troublesome; and, what is often of worse consequence, it frequently gives an interruption, for a time, to the use of other remedies. In some instances, however, when the swelling of the joint is considerable, it proves difficult, or even impracticable, to procure a sufficient quantity of blood by cupping: In such cases, we are under the necessity of applying leeches, which seldom fail of obtaining as much blood as is required.

Upon the anterior part of the joint, where the cupping-glasses or leeches have not been placed, a small blister should be directly applied; and the part should be kept open with issue-ointment, till the wounds from whence the blood was discharged are so far healed, that a vesicatory may likewise be laid on one side of the joint; and as soon as this is nearly healed, the other side should be also blistered.

By thus alternately applying them, first to the one side, and then to the other, almost a constant stimulus is kept up; which, in deep seated inflammations, seems to have

have fully a more powerful influence than all the discharge occasioned by blisters.

Gentle cooling laxatives, at proper intervals, are here of use too: and the patient should, in every respect, be kept upon a strict antiphlogistic course, both as to diet and every other circumstance: From a due attention to which, with a continuance of the topical treatment already recommended, I have frequently observed very considerable advantages, more indeed than from any other remedies I had ever an opportunity of using in this complaint.

It is in the first stages only, however, of the disease, that such a course can probably be of much service; and in these, I am, from experience, convinced, that it has frequently effected cures in cases which otherwise would probably have proceeded to the last stages of white swelling.

The original inflammatory affection being removed, drains of this kind seem to have little or no influence; and ought not now to be long persisted in, as they tend to prevent the use of other remedies, which,

which, in an advanced state of the disease, prove commonly more efficacious.

§ 2. *Of the Effects of Mercury, Friction, and other Remedies, in the more advanced Stages of White Swelling.*

THE inflammation being mostly gone, and while there are yet no appearances of the formation of matter, mercury I have sometimes known of use; not given so as to salivate, but merely to affect the mouth gently, and to keep it somewhat sore for a few weeks.

The best form of using mercury, in such cases, is certainly by way of unction; as it allows, at the same time, of the application of friction, which in all such swellings may of itself in some measure be considered as a remedy. For this purpose, an ointment of quicksilver and hog's lard should be prepared; but with so small a proportion of the former, that two drachms of the ointment may be safely rubbed in, three times a-day. In order to rub in that quantity of the medicine with gentle friction, and so as to receive all the advantages that

that attend the practice, an hour at least should be spent each time in rubbing ; for, however useful friction in such cases may be when properly applied, in the ordinary way of continuing the remedy for a few minutes only, it is not probable it ever can have much influence.

Gentle mercurials, given internally, are here sometimes of service too ; but, as all the advantages to be derived from them in this form are obtained from the unction, together with any benefit that may ensue from the friction used in applying it, the latter should certainly be preferred.

By Le Dran, and other French writers, falls of warm water on swellings of this nature are much recommended ; and there is much reason to think, that a long continued and reiterated application of this remedy, may, in the first stages of these complaints, be often attended with very good effects. Of this, indeed, I have now had many opportunities of being convinced ; and, from the well-known relaxing property of moisture when conjoined with heat, there is the greatest reason to
imagine,

imagine, that a proper application, especially of warm, emollient steams, will, if it is ever generally employed, be found to prove more serviceable in disorders of this kind, than perhaps any other remedy.

In the use of warm water in cases of white swelling, the friction occasioned by its fall on the part, independent of every other circumstance, may probably have a very considerable influence: At least this, I think, is the principal effect which cold water can, in this way produce; I have known it frequently used, and, on some occasions, with advantage.

By a proper use of these different applications, namely, of the several topical remedies in the first or inflammatory state of the disease, and afterwards, but still before the formation of matter, of mercurials, friction, &c. many affections of this nature have been entirely removed: But, in many instances, when, either by the use of medicines, or by an effort of nature, the swelling and pain are almost entirely, or even wholly removed, it frequently happens, by the bent position in which the limb

limb has for a long time been kept, that the use of the joint comes to be entirely lost, as it often contracts such a degree of stiffness, that any attempts to move it are commonly attended with very great pain.

Unluckily, in all such cases, these affections of the joints have been constantly attributed to one or other of two different causes, which are both in their nature incurable; namely, either to the ends of such bones as compose the joints having run into one another, so as to become firmly conjoined in consequence of the surrounding cartilages being abraded; or to the inspissation, as it is termed, of the synovia of the joints, whereby their cavities are supposed to be entirely filled up, and no space thereby left for the motion of the different bones.

Both of these opinions, however, I can, from a great number of facts, assert to be, in general at least, very ill-founded; for although, by an abrasion of the cartilages which surround the different bones at the joints, an union of their extremities may very readily be occasioned, and is no doubt on some occasions the cause of such affec-

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tions;

tions ; yet, from a variety of dissections, I am convinced that it is an exceeding rare occurrence, and in cases of white swelling never happens but in the most advanced stages of the disorder : the only cause almost of the stiffness of the joints, in such cases, being that contracted state of the flexor tendons, formerly taken notice of in the description ; at least in nineteen cases out of twenty it seems to be so.

There is nothing indeed more deceiving than the feel on such occasions ; for when the disorder has been of long duration, the stiffness and immobility of the joint are generally so considerable, as, at first sight, to make it seem very probable, or almost certain, that a real conjunction of the bones had taken place : Many instances of this I have known, which had been all along considered as real anchyloses of the worst kind ; but which, on dissection, were constantly found to proceed merely from a contracted state of the flexor muscles and tendons.

With respect to the other opinion, which formerly prevailed so universally, and which

which is still held by many, that affections of this kind generally proceed from an inspissated state of the synovial fluid, it has for some time been much doubted by many anatomists, whether or not such a state of that fluid ever occurs; and from all the opportunities I have had of dissecting such diseased joints, I am much convinced, that it either never does take place, or at least that it is an exceeding rare occurrence. For, in every case of this kind I have met with, even when the disease had been of very long continuance, if the capsular ligament of the joint remained undivided, so that no matter from the surrounding soft parts got admittance, and when the ends of the bones were not become carious, the synovia always retained its natural colour and consistence: So that it is very probable, the many causes of diseased joints, which have been attributed to affections of this fluid, have been more founded on mere hypotheses, than on facts and experience.

As this stiffness of the joint, therefore, which to a certain degree always occurs in white swellings, proceeds seldom or never from either of the causes mentioned;

which might probably both be considered as incurable, but merely from a preternatural contraction of the muscles and tendons; we have from this circumstance great reason to expect, that, in many situations, a good deal may be done towards its removal. And in fact, there is no doubt but that complaints of this kind, which often remain after every other symptom of white swelling has disappeared, may, on many occasions, be removed merely by a long continued use of emollients: several instances, indeed, of this, I have seen, some of which had been thought to be of the worst species of anchylosis.

The best, and probably the least offensive, emollient that can be used, is pure olive oil applied warm. As much of it as can be easily consumed by an hour's gentle friction, should be regularly rubbed in at least three times a-day; and instead of confining the friction entirely to the rigid tendons, which is the common practice, it should be extended over the whole muscles, even to the insertions of their other extremities; but more especially on their
fleshy

fleshy muscular parts, where the principal cause of the continuance of such complaints is probably seated; these parts being chiefly, if not altogether, possessed of the contractile, and consequently of the resisting, powers.

I have known used, too, in this complaint, as an emollient, and often with advantage, an oil extracted from animal substances, known by the name of Neats-foot Oil: but as it is more apt to turn rancid than olive oil, it is not such a pleasant application; and as it is not possessed of any superior relaxing properties, the other will probably, for that reason, be commonly preferred.

The disorder now under consideration, namely, a stiff joint, is so evidently one of those which particularly require the use of emollients, that almost every old woman has some particular form or other of recommending them; one of which I cannot avoid mentioning, as I have frequently known it used, and in two cases particularly, with very evident advantages, viz. the web or omentum of a new-killed sheep, or of any other animal, to be ap-

plied over all the diseased parts directly on being cut out of the animal.

In the two cases alluded to, one was in the knee, and the other in the hand; and the motion of the joints, after having been totally lost, was almost perfectly restored. The application should be renewed as frequently as possible, once a-day at least, or oftener when it can be done: for on being more than four or five hours applied, it becomes disagreeable; and, after that time, indeed, as it commonly turns stiff, it cannot then probably be of much service. The same kind of remedy, used in somewhat a different manner, I find recommended by LIEUTAUD, a celebrated French practitioner*.

I have been the more particular on this part of the subject, as I have often thought, that, with a little attention, the use of many joints might be recovered, which, from a mistaken notion concerning their causes, have

* Mr Lieutaud says, when speaking of such affections, "*Obvolvitur etiam pars affecta pelle calida vervecis, viruli, alteriusve pœudis, recens macerati, vel immittitur in ipsum ventrem bovis, vitali calore haud defraudatæ.*" *Synopsis Universae Praxeos Medicæ*, Vol. I. p. 400.

have generally from the first been considered as incurable.

The disorder has hitherto been supposed not to be so far advanced as to have occasioned the formation of matter; for, when it is come that length, no considerable advantages can be expected from any of the remedies we have recommended: but, even in this state of the complaint, if the patient's health does not absolutely require it, amputation of the member should by no means be performed immediately, as it most frequently is. For, by paying attention to open the different abscesses soon after their formation, the matter may be pretty certainly prevented from affecting, or essentially injuring, the capsular ligaments of the joints; the destruction of which would no doubt render amputation necessary.

By the use of the seton, as was formerly directed in other cases of imposthume, the discharge of such collections is certainly and easily effected; is never attended with any inconvenience; and has sometimes been, and may frequently be, a means of saving many such diseased joints. At least, when a limb is at stake, the prac-

tige recommended is on all occasions worth trying : and there never, it is probable, can be any well-grounded objection made to it; unless the patient's constitution be so much reduced as to produce much risk from any farther delay; in which case, amputation is, no doubt, to be immediately performed : though, if such abscesses as occur be opened soon after their first formation, there will always be sufficient time for observing what advantages are to be obtained from the discharge which is thus produced.

It is necessary, however, to remark, that it is in collections of matter only for which we here mean to recommend the use of setons; for it frequently happens, in rheumatic affections of the larger joints, that effusions of serum take place in very considerable quantities; which, merely by the application of moderate friction to the parts affected, are frequently altogether absorbed. This, however, happens rarely in abscesses of real purulent matter: so that whenever collections of this nature occur upon a joint, they ought to be discharged; and the safest method of effecting it,

it, is undoubtedly by the introduction of a feton.

With respect to the most proper period of the disease for amputating limbs diseased in this manner, it may be observed, that, even in point of success from the operation, it ought never to be advised till the complaint is pretty far advanced. For though, *a priori*, it might be imagined, that the more early, in the disease, amputation of the member is employed, the more successful it should prove; and although this, indeed, has been made use of as a common argument for amputating very early in every case of white swelling; yet, however plausible the observation may appear, it will not, from experience, I am persuaded, be found to hold good. For, in this disorder especially, I have constantly observed, that amputation has more frequently succeeded, that is, a greater proportion of such patients have recovered from it, who have previously been considerably reduced by diarrhoeas and other weakening symptoms, than of such as have still remained in a full plethoric habit of body.

In the former, when the constitution has
not

not been too much broken, and we have it always in our power to guard against its being so, the several symptoms of hectic fever, which previously took place, are commonly removed in a very few days after the limb is taken off: No high inflammatory affections are ever produced; the patient daily improves in his health; and a complete cure, if he has not been too much reduced, is generally very soon obtained. In the latter again, the very reverse of all these circumstances occurs: The patient, from being in high health at the time of the operation, is generally thrown into a smart inflammatory fever; which is, no doubt, very often removed, but which frequently either carries off the patient immediately, or produces such effects as he never thoroughly recovers from.

So that in no case whatever is it proper to have recourse to amputation, until every probable means for saving the limb has been tried in vain.

All the means we have hitherto recommended, relate particularly to the rheumatic species of the disorder; and when employed in time, and duly persisted in, they will
fre-

frequently be found of service : but when the disease is so far advanced as to have destroyed the capsular ligaments of the joint, and perhaps even the cartilages and bones themselves, amputation of the member is then no doubt the only resource.

In the more fatal species of white swelling, namely, the scrophulous, as I know no certain remedy for scrophula, even in its milder form in the soft parts of the body, I cannot here pretend to offer any thing satisfactory upon the subject.

In the small joints, when the diseased parts of the bone begin to cast off, a cure may be sometimes promoted by assisting the efforts of nature ; but in all the large joints, particularly in the knee and ankle, it is not probable that any other resource than amputation will ever afford much relief. And even the effects of this operation can seldom be depended on as lasting : for when the general scrophulous disposition still subsists in the constitution, the disorder will most probably appear again in some other part ; which, however, in the advanced stages of the disease, it is sometimes necessary to run the risk of, the pain being often

often so tormenting as to make it more eligible to submit to any hazard rather than to bear it longer.

When, however, for some reason or other, amputation is determined against; by there being almost a certainty that the complaint will soon return, from the scrophulous disposition's appearing very strong in the system, it then becomes necessary to have recourse to palliatives, so as to render the complaint as tolerable as possible; and, with this view, opiates in large doses, by moderating the pain and procuring rest, will, in general, be found to be the principal remedy.

In other respects, all such medicines and articles of regimen, as are found to prove beneficial in scrophula, are advisable; but for these, as it would be foreign to the intention of this treatise to enumerate them, a former section of the second part of this work, together with such authors as have written more fully on the subject, may be consulted.

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